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BRAIN TUMORS*
A SYMPOSIUM

EYE FINDINGS AS AN AID IN THE DIAGNOSING AND LOCALIZATION OF BRAIN TUMORS

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It would be futile to attempt any thorough discussion of all the various ocular symptoms associated with brain tumors and so in this short space of time I shall try to mention in a general way the most common and to discuss more freely those of seemingly greatest importance.

Ocular symptoms resulting from brain tumors fall into two general classes: First, those resulting from intracranial pressure and second, those resulting from injury to or dysfunction of the motor and sensory tracts to the eyeball. The first tells us in no uncertain terms that something is wrong, but the mechanical force which gives us the warning often confuses the issue, not only furnishing no definite clue as to the location of the lesion but often leading one astray.

OBJECTIVE SIGNS OF INTRACRANIAL PRESSURE

The most common objective symptom of intracranial pressure is papilledema or choked disc which may or may not be associated with a mild degree of exophthalmos. It is usually bilateral but if unilateral rarely means anything except in instances where tumors in the region of the chiasm or intracranial portion of the optic nerve produce pressure on the optic nerve and foramen. In such a case there could be atrophy and blindness on the side of the lesion with papilledema on the opposite side.

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In addition to papilledema, intracranial pressure may result in a stretching, or constriction of, or a pressure on any of the oculomotor nerves. James Collier explains this as being the result of a shifting backward of the brain, the effect being traction on the nerves attached to the brain stem, the amount of traction being directly in proportion to a straight fronto-caudal direction. With this as a basis he gives the order of paralysis as, first, the sixth, then the third and finally the seventh and eighth nerves. Cushing gives a different explanation, stating that as the sixth nerve runs directly forward it meets the anterior inferior cerebellar and the internal auditory arteries at right angles. In many cases these vessels lie ventral to the nerve and it (the nerve) is liable to compression between the vessels and the pons.

The third nerve has a very close relationship with cerebral vessels and as a result of intracranial pressure may be pinched between the superior cerebellar and the posterior cerebral arteries.

It may be stated in a general way, that infiltrating tumors are more prone to produce intracranial pressure than those which simply displace tissue, and that the nearer they are to the base of the brain the greater is this tendency. As instances illustrating this point may be mentioned tumors of the pineal or quadrigeminal bodies, the cerebellum, and tumors located in the region of the cerebello-pontine angle.

OCULAR SIGNS

There exists a very close relationship between the third, fourth and sixth cranial nerves together with the eighth and the cerebellum, the latter association being necessary for the maintenance of equilibrium.

These three motor nuclei are situated on each side of a midline, beneath the aqueduct of Syl-

vius on the floor of the fourth ventricle. The nuclei of the opposite sides are interconnected and on the same side are associated with each other by the posterior longitudinal bundle which in turn gives association with the seventh and eighth nucleus and cerebellum.

The cerebellum contains the co-ordinating center for ocular movements and is located in the anterior end of the vermis close to the median line. The central connections of these nuclei are indeed complex and no final agreement has been reached.

There is a cortical center for voluntary eye movements located in the posterior portion of the second frontal convolution and one for fixation in the occipital lobe. The angular gyrus is thought to be a thoroughfare for fibers between these two centers.

The supranuclear center for lateral movement is thought to be located near the sixth nerve nucleus and has charge of stimuli from the opposite side.

Paralysis of the motor nerves to the eye can of course be caused by any lesion existing in their pathways from the cortical centers to the muscles themselves and these lesions are classified as supranuclear, nuclear, and infranuclear.

The cortical centers are association centers for complicated movements of the eyeball and tumors affecting these centers, as well as the supranuclear paths, do not cause paralysis of any one muscle or disconnected groups of muscles, but rather cause paralysis of the various co-ordinated movements such as a lateral gaze.

The innervation for associated movements, however, is contra-lateral so that a paralyzing lesion on the right would cause a conjugate deviation of the eyes to the right, the left muscles being paralyzed. In other words, in this instance, the eyes look toward the lesion. In irritative lesions however, the left side being stimulated, the reverse would be true.

Unlike the supranuclear lesions, nuclear lesions may involve one or a group of muscles and when a group is involved it may be muscles which have no co-ordinate movements. Total ophthalmoplegia of one eye can hardly be nuclear, but bilateral. Ophthalmoplegia externa or ophthalmoplegia interna are nuclear in origin.

An isolated paralysis of one or two muscles is usually nuclear, provided injury to the terminal nerve endings or the muscles themselves can be excluded.

As a general rule, nuclear lesions of the third differ from the infranuclear in that the latter rarely spare the sphincter pupillae or the ciliary muscle.

The afferent light pathway begins in the retina and pupillomotor fibers pass from the retina through the optic tract to the primary visual center, whence they avoid the external geniculate body (questioned by some) and pass by way of the superior brachium to the superior colliculus. Here new fibers begin and connect with the Edinger-Westphal nucleus. The efferent nerve fibers then pass by way of the third nerve to the ciliary ganglion and from there to the iris and ciliary body.

Complete destruction of the optic tract anterior to or involving the primary center results in:

1—No direct pupillary reaction on the same side.

2—No consensual reaction on the opposite side.

3—Consensual reaction on the same side.

Complete destruction of the third nerve anterior to the nucleus, results in:

1—No direct reaction on the same side.

2—No consensual reaction on the same side.

3—Consensual reaction on the opposite side.

The Wernicke phenomenon is based on this reaction and will be referred to later.

Fasicular paralysis of the third nerve, i.e., from the nucleus proper to the point of emergence, because of its location in the brain stem and its proximity to the peduncle (before decussation) is oftener than not associated with this structure in a common lesion, thereby resulting in palsies involving the opposite side.

The sixth nerve may be involved with the seventh owing to the peculiar manner in which the seventh curves around the sixth nucleus before emergence, and for this reason nuclear lesions of the seventh often produce paralysis of the sixth, together with complete homolateral paralysis of the entire side of the face. Infranuclear lesions of the seventh from the point of emergence to the geniculate ganglion also involve lacrimal secretory fibers. Lesions peripheral to the ganglion do not affect lacrimation.

The first and second divisions of the trige-

minal nerve supply the eye. Lesions or injury to any part of the pathway results in desensitization of the eye with absence of corneal reflex. If the lesion is peripheral, corneal ulceration and neuro-paralysis occur in addition.

OPTIC TRACTS

The optic tracts, the connecting link between the optical and the cortical retinas, enter the skull through the optic foramen. They then converge and join to form the optic commissure. They then diverge and circling the brain stem, reach the primary visual centers, the external geniculate body, the optic thalamus and the superior colliculus.

From the external geniculate body, fibers or third neurons pass by way of the posterior end of the internal capsule and optic radiations to reach the higher visual centers located on the mesial and to a less extent the lateral surface of the posterior portion of the occipital lobe together with its posterior pole.

In the higher visual centers, located in the calcarine cortex, certain definite areas have been located and plotted which represent corresponding areas in the optical retina. In a general way it may be described as follows: The upper visual fields are represented below the calcarine sulcus and the lower fields above. The peripheral fields are located anteriorly, the horizontal equatorial areas in the bottom of the sulcus and the macular region in the posterior portion at the pole.

Tumors affecting the intracranial portion of the optic nerve, anterior to the commissure, would of course affect only one eye, with early atrophy and total or partial blindness on the same side. There could be, as referred to previously, a possible papilledema of the opposite side.

In the normal chiasm, the nasal fibers are located centrally or mesially while the temporal fibers are located laterally and it is in this partial decussation where the most bizarre types of visual fields are found. The classic, or possibly I should say the most common type, is one in which the superior temporal quadrants are first affected. Following this the remaining temporal goes, then the upper or lower nasal and next, blindness.

VISUAL FIELDS

Fields vary greatly, depending among other things on the length of the intracranial portion of the optic nerve. The farther back the chiasm, the greater the opportunity for a simultaneous involvement of the optic nerve by pituitary or other tumors of that region. With a very short optic nerve, however, the chiasm will be well forward and the same complication holds true but with reference to the optic tracts posteriorly.

Irregular and bizarre types of fields, together with a beginning bitemporal quality, may then be regarded as being more or less typical of chiasmal lesions.

Bilateral involvement of the nasal fields are uncommon and are generally assumed to be due to lateral pressure from the carotids themselves or due to some pressure from above such as a distended third ventricle forcing the temporal fibers against the more or less rigid vessels.

From the optic commissure to the cortex, each tract contains uncrossed temporal fibers including those of the temporal macula and crossed nasal fibers also including those of the nasal macula.

As the optic tract reaches the primary centers, about 80 per cent of the fibers go to the external geniculate body while the rest pass on to the superior colliculus. Only fibers from the geniculate body pass to the calcarine cortex, while the superior colliculus is associated with the motor nuclei.

In passing from the external geniculate body, the optic fibers widen out into a sort of fan shape and forming the optic radiations pass directly backward toward the calcarine cortex.

In 1907, Adolph Meyer described how a part of the optic radiations, as they leave the external geniculate body, instead of sweeping directly backward as the rest, extend far forward into the temporal lobe before turning backward. This ventral band is known as "Meyer's loop" and will be referred to later.

DIFFERENTIATION OF ANOPSIAS

In a general way, the essential differences between anopsias above the primary visual centers and those of the tract and the primary centers are as follows:

1. The Wernicke pupillary phenomenon is absent.

2. Atrophy, visible in the nerve head, is not in evidence.

3. Instead of complete forms of homonymous hemianopsia, the hemianopsia takes the form of irregular homonymous anopsia, with a tendency finally to a total loss of half vision.

4. The preservation of the macular area.

The Wernicke phenomenon is based on the pupillomotor reflex and is elicited by casting a beam of light on the supposedly involved retina. If the lesion is above the primary visual centers, there will be a consensual reaction in the opposite eye.

The absence of atrophy is of diagnostic value in cases of long standing and may be complicated by an atrophy following a former papilledema.

The hemianopsias being partial, as a rule, finally enlarging until all but the macular area is involved, are due to an expansion of the fibers in the radiations in dorsal, lateral and ventral bundles, the ventral bundle as has been mentioned, forming the Meyer's loop.

The sparing of the macula is generally attributed to the fact of its large area and posterior position in the calcarine cortex together with a double blood supply.

Involvement of the ventral bundle of optic radiations or the Meyer's loop shows partial field defects, short of hemianopsias with the greatest defect on the affected side. The field defects are commonly quadrant in type.

Another feature of lesions in this area is the frequency of visual hallucinations, sometimes accompanied by the so-called uncinate seizures, due to involvement of the uncinate process of the hippocampal gyrus.

A sloping tendency of the dividing line in visual fields has been alluded to as rather characteristic of lesions involving the other portions of the radiations.

CONCLUSIONS

1. Choked disc is purely a diagnostic sign of intracranial pressure but otherwise of little value so far as localization is concerned.

2. In the presence of intracranial pressure, infranuclear involvement of the third, fourth, and sixth cranial nerves loses much value as localizing symptoms but if intracranial pressure is absent, this is helpful.

3. Perimetric findings are of great aid in localizing brain tumors and by careful fields, the separate parts of the tract may be differentiated.

4. Involvement of Meyer's loop with visual hallucinations and so-called uncinate seizures is almost a positive localizing sign.

THE ROLE OF THE NEUROLOGIST IN BRAIN TUMOR

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From the nature of this program one is impressed by the evident fact that the subject of brain tumor concerns more than just the neurologist. Indeed, the neurologist must acknowledge that he should call upon the aid which men in other specialties can give him. Oftentimes confirmation of the presence or absence of a brain tumor comes from the ophthalmologist, radiologist, otologist or rhinologist. Be that as it may, the brunt of responsibility for the diagnosis and localization of a brain tumor lies with the neurologist. With an adequate knowledge of the anatomy of the central nervous system and its normal and pathologic physiology and with a good storehouse of experience the neurologist takes, by virtue of this background, the leading role in the diagnosis of a case.

With all this background and all the tests that the neurologist knows, he determines the functional activity or falling out of activity of nerve structures. It must be conceded at the outset that diagnosis of a brain tumor is often very difficult and at times even impossible. As in other branches of medicine, much thought has been given to discovering means by which diagnosis can be made with greater ease and certainty. In the past decade, hand-in-hand with the interest and impetus to progress which the general subject of neurology has acquired, methods for subtler and keener diagnosis have become available. A few will be mentioned later.

SYMPTOMS

Let it not be imagined that all cases of brain tumor present the classical symptoms which

are mentioned in the textbooks. I refer to headache, projectile vomiting and choked disc. Would it not be easy if this were the case? And what about localization? Where does the growth lie? What information does that give the brain surgeon who must go after the tumor? He cannot cut windows into the skull to look for it. This is, of course, an exaggeration on my part. The surgeon knows better. He demands of the neurologist more specific information as to its location. In fact, he goes further. He is beginning to insist on some advance information as just what kind of a growth he is going to encounter, for he has learned that he must suit his surgical method to different locations and kinds of tumor, or perhaps he will prefer not to operate at all. The neurologist in turn has had to keep pace with the recent tremendous advance in neurologic surgery and treatment, and has had to equip himself with a knowledge of neuropathologic entities and their morphologic and growth characteristics. Roentgen ray therapy is effective in certain tumors, as medulloblastomas.

To return now to symptoms mentioned: These are simply evidences of increased intracranial pressure, and really, such a triad might occur in any of several general medical conditions, the patient not harboring a neoplasm at all. But where are we to start? As applies to any medical or surgical problem, the history of the case should receive first consideration. A thorough investigation of the nature of the symptoms as they developed, strict attention to the chronology of their appearance, and in which part of the body they appeared, is of major importance. The history alone often gives the clue as to the presence and location of the growth. Special regard should be had for any change which might have been noted in the patient's behavior, his mental state or his speech. These may be the very first symptoms which the patient presents. All information, whether given by the family or by the patient should receive due thought and should be evaluated in the sum total of the entire history.

It is appropriate to consider a few of the commoner symptoms, for instance, headache. Most observers find this present in the greatest number of cases, and in truth, is most often the very first symptom. The location of the headache is of very little localizing value yet its very presence, its relentless character, and ultimate severity, either constant, intermittent or paroxysmal, deserves attention. The headache, usually deep seated, is frequently associated with dizziness, faintness, confusion, dulling of the intellect, and memory disturbances. The headache may be the specific manifestation of a tumor but more often, as it becomes increasingly more severe, it indicates an increase in intracranial pressure. The latter is a result either of an interference with the outflow and absorption of the cerebrospinal fluid from its channels because of direct pressure by the tumor upon these channels or areas, or it may be due to a progressing expansion of the tumor and its usurping of space which the brain properly should occupy within the unyielding skull, though it may not be proximate to these channels and areas.

Vomiting deserves mention just to dispell the notion that it is always projectile in character. In fact, it is very frequently associated with nausea, especially where there is an increase in intracranial pressure. Nausea frequently occurs alone.

I have referred to the change in the patient's behavior and personality. This may be the very first sign of trouble. At first insidious and hardly evident, it may become quite pronounced. In the absence of a constitutional disease, the physician should be ever alert to the possibility of a brain tumor. Recent surveys of large groups of cases of tumors in all locations of the brain, even in tumors of the posterior fossa, have shown a surprisingly large incidence of mental symptoms. No need to go into the various types of mental symptoms, suffice to say that they occur. One should not make the mistake of diagnosing psychosis and letting it go at that, without also making a thorough neurologic investigation to rule out a possible neoplasm. Many patients in the hospitals for the insane turn out, at necropsy, to have a brain tumor. One per cent to two per cent of deaths in Mt. Sinai, New York, at necropsy are due to brain tumor; so states Globus. The brain is the third most frequent site in which tumor occurs. (Sachs)

Two symptoms which require special attention for their presence invariably means intracranial Convulsions should arouse suspicion always, for their presence invariably means intracrannial trouble. This is especially true when they occur in adults. It would encumber this paper to go into a differential diagnosis of convulsions. The time of onset of the convulsions in relation to other symptoms and signs, and the character of the fits need elucidation. A Jacksonian, whether motor or sensory, is a valuable lead for localization. In the case of a major seizure, attempt should be made to learn in which part of the body the attack starts. The type of seizure gives a clue to its level, the clonic fit being usually due to cortical irritation, the tonic type usually to deeper-seated lesions. As for the speech aberrations, valuable information will come from the patient's family, for it usually is not difficult for them to detect the change. His mental state may alter his speech. Aphasic phenomena give good leads as to the site of the lesion.

OBJECTIVE SIGNS

Thus far nothing has been said of the objective signs. To be able to detect the presence of cerebral trouble presupposes a knowledge of the functional disturbances which result when nerve structures are compromised by disease. The neurologist has conceived various tests to determine the presence of these disturbances. Such disturbances may be in the motor or sensory spheres, in the special senses as vision, smell, hearing or taste, either in their central or peripheral pathways, in the sphere of coordination of movements, in the functions subserved by the cranial nerves. It can rightfully be argued that vascular disease, or inflammatory disease or degenerative disease can produce similar disturbances. In the evaluation of this data the careful clinician takes into consideration many factors, factors which a good doctor in any situation takes into consideration, the history of the course and development of the symptoms and signs and finally the objective picture. His clinical experience and intuition must guide him.

A FEW DIAGNOSTIC SYNDROMES

It is needless to mention particular syndromes, since the various regions of the brain give quite characteristic ones, though often perhaps modified and complicated pictures. To go into this would enlarge this paper to the proportions of a textbook. It will suffice to mention just a few examples which give clues as to location. Such are: the anosmia and optic atrophy of subfrontal and suprasellar lesions; the mental symptoms of frontal lobe tumors; the spastic phenomena and forced gasping and sucking reflexes of the prefrontal regions; the pareses and paralyses, either with or without convulsions, of the motor areas; the sensory disturbances of the sensory parietal area; the aphasia and agnosia of the speech areas; the apraxia of the corpus callosum; the visual field disturbances, the hemianopsia and quadrantanopsia, and the auditory nd visual hallucinations of the temporal and occipital lobes; the uncinate fits of temporo-sphenoidal lobe lesions; the decerebrate phenomena of diencephalic lesions; the pupillary disturbances and difficulties of conjugate eye movements of midbrain and brain stem lesions; the vegetative, temperature and sleep rhythm disturbances of the hypothalamic centers; the skeletal changes in pituitary trouble; disturbance of body temperature, fat and water metabolism and usually polyuria in lesions involving the area of the tubercinerium; the coordination difficulties of the cerebellum and its connections; the disturbances of the individual cranial nerves and so on.

Papilledema itself betrays an increased intracranial pressure. Its appearance early in the course of the case indicates that the ventricular system is being obstructed by the tumor. This is most likely to occur where the tumor compresses the brain stem, and points quickly to the posterior fossa or the mid-brain. Otherwise, papilledema itself has no focalizing value. In this connection a word should be said about the duration of a brain tumor. There are cases with a rapid course, the so-called acute, malignant tumors. The rapid course may be due to the inherent malignant character of the tumor, as the spongioblastoma multiforme. Its malignancy, like a cancer of any other tissue can kill, yet the tumor itself be relatively small in size and anywhere in the brain. Again, a benign tumor, if situated near the outlets of the cerebrospinal fluid, will cause an early

and rapid increase in intracranial pressure with a rapid increase in signs. The slower course of the tumor may be due to the slow growing nature of the tumor as well as to the fact that it is located at a distance from the fluid channels. Not until late, and when the tumor has reached a large size, will there be an appreciable increase in the intracranial pressure.

SPINAL PUNCTURE AND PRESSURE

Needless to say that it should be our aim to detect and localize the tumor as early as possible. The neurologist can call to his aid various laboratory tests, for instance, the lumbar puncture and estimation of the cerebrospinal fluid pressure. Great caution should be exercised in this procedure, for too sudden a release of the fluid will cause a jamming of the medulla of a swollen brain into the foramen magnum, with tragic results. An increased pressure is of significance. Its protein content should be determined, an increase indicating disturbed mechanics of the cerebral circulation. The fluid might be bloody, it might contain tumor cells. It is known that an increased spinal fluid pressure can occur in conditions other than brain tumor. It can occur in metabolic toxic states, malignant hypertension with crisis, secondary to otitic and meningeal diseases and so on. A useful gauge to distinguish the hydrocephalus which is due to general conditions from that due to brain tumor is the so-called Ayala index. The Ayala index is derived as follows: The initial spinal fluid pressure is recorded from the tube of the water manometer, the patient lying on his side, 10 c.c. of fluid is withdrawn, and the final pressure is recorded. Now the final pressure times the amount of fluid withdrawn divided by the initial pressure, is the index. Let us take an example, using figures. If the initial pressure is 200, and after the removal of 10 c.c. of fluid the pressure drops to 40, the formula is $\frac{40 \text{ times } 10}{200} = \frac{400}{200} = 2$. When the quotient is less than 5 or 5.5, one can state with a fair degree of certainty that the increased pressure is due to an expanding lesion. In a large number of cases this has proved to be a reliable guide in differentiating increased pressure due to a brain tumor and other causes. When the Ayala index is above 5, or 5.5, the increased intracranial pressure is generally due to some condition other than brain tumor.

ROENTGEN RAY DIAGNOSIS

The clinical picture may not be a simple one, either because of a paucity of findings or perhaps because of a confusion of many findings —many of which may be due to the too great intracranial pressure. The neurologist employs the ventriculogram or the encephalogram, for these are of special value in the localization of the tumor. The principle behind this is the replacing of the cerebrospinal fluid by air and the taking of roentgen ray pictures in various planes of the skull. The lighter air which has filled the cerebral ventricles and channels causes a rarefied shadow on the plates and outlines the ventricular and subarachnoid spaces, thus showing up any displacement or distortion of these structures. This gives the clue as to where the tumor lies. In the case of the ventriculogram, the air is introduced directly into one of the lateral ventricles of the brain through a trephine opening in the skull. The fluid is at first withdrawn slowly, a few c.c. at a time and an equal amount of air is introduced slowly. The total amount of air that the patient can stand may be between 60 and 120 c.c. and will depend upon the dilatation of the ventricles and also upon the patient's reaction to the procedure. In the encephalogram, the air is introduced by way of the lumbar route through a spinal puncture needle, in the same fractional way as for the ventriculogram. The lighter air ascends into the skull.

A plain roentgen ray plate of the skull may give important information. It may show increased convolutional markings, indicating prolonged increased intracranial pressure. The bones of the skull may show thinning or thickening thus betraying a tumor in the vicinity. An enlarged or eroded sella turcica means something. Calcified nodules frequently lie in tumors and their appearance in the picture may give a clue, as will calcified blood vessels of angiomatous tumors and pineal gland calcification.

SUMMARY

Without becoming too involved in the neurologic aspects of brain tumor it is hoped that some insight has been given into the problems

with which the neurologist must contend in the diagnosis of brain tumor. Little has been said of his methods of examination, of the anatomy and physiology of the central nervous system, of the pathology of brain tumors and of the various clinical pictures which tumors in various locations present.

THE SURGICAL TREATMENT OF BRAIN TUMORS

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Such a title would seem to imply that there are other methods of treating brain tumors than by surgery. Some fifteen or twenty years ago I once heard a neurologist say that he did not have patients with brain tumor operated upon because the results were so bad; even that man has finally learned what everybody knows, that the only way to get rid of a brain tumor is either to remove it or destroy it.

Fifteen and twenty years ago the removal was even a more formidable procedure than it is today and in addition one of the greatest problems was to find the tumor when operated upon, for accurate methods of diagnosis were not available as they are today.

When I started in doing neurologic surgery twenty-five years ago, frequently the tumor was not exposed at operation and, even if it was, the technic to remove it had not been developed. In the past five years we have exposed and removed at operation between 95 per cent and 98 per cent of all tumors. This great change in this phase of the subject has been due to four factors: first, more accurate diagnosis; second, ventriculography (air injection); third, the electric surgical unit; and fourth, the use of suction.

I should like to take up these four factors. First, what additions to diagnosis have been made which have made such a fundamental difference. The first point I would draw your attention to is the great help that has been derived from the accurate study of eye fields. The second is the realization that a brain tumor is not a rare disease, in fact the brain is the second most common organ in which tumors occur. In the past twenty years at Barnes Hospital there have been 1200 cases of carcinoma of the uterus, 720 brain tumors, 550 carcinomas of the stomach, and 511 carcinomas of the breast.

One of the most important points I believe is the recognition of the earliest symptoms and signs of brain tumor, for the successful surgical treatment depends on how early we get hold of the cases. It has been a time honored belief that the earliest symptoms of brain tumor are headache, vomiting and choked disc, but many patients are seen today on whom we can make the diagnosis when at least two of these three symptoms have not yet appeared. There is one symptom which is extremely common that has been frequently overlooked which is one of the earliest signs of brain tumor, and that is convulsions, either focal or general.

I have recently reviewed all my material from this point of view and have been amazed to find how frequently a convulsion preceded all other symptoms or signs of brain tumor by months, and often years. I had been teaching for years that every adult patient who has a convulsion and has not syphilis should be considered as having a tumor until proved otherwise, but until the material was analyzed I did not realize how frequently this symptom was the very first one. In this study were reviewed 724 cases of verified brain tumors. In 20.7 per cent of these cases convulsions occurred at the onset of the disease. Taking out the cerebellar cases from this series there were 397 cases of cerebral tumor and in this group convulsions occurred in 34.8 per cent of the cases, over one-third of the patients. These startling figures deserve to be emphasized as it undoubtedly brings home to us how patients should be dealt with who, in adult life, begin to have convulsions. Whenever there is the slightest suspicion that the convulsion is a focal one, encephalographic studies should be undertaken. Following this procedure there will inevitably be cases which show nothing, but on the other hand every once in a while an unsuspected tumor will be uncovered. Within the past week I have had such an experience. I saw a patient four years ago because of convulsions and condemned him to the inevitable luminal and bromide. Recently because he had been having some headache, he returned, and having these

figures from my recent studies in mind I did an encephalogram and found a tumor.

DISCUSSION

Dr. Theodore J. Dimitry (New Orleans): The fundi pictures of the normal and diseased eye are truly beautiful and the information obtained from such pictures is astounding. They do not alone inform that pathology exists locally, but also reflect many diseases of the body. An example of the latter is that of brain tumor.

On looking with the ophthalmoscope into the eye, a view is obtained of the ending of the optic nerve lobe of the brain. To the ophthalmologist, it is the papilla, and when inflamed, the pathology is a papillitis. An inflammation of the optic nerve behind the eye is an optic neuritis.

The optic nerve is covered as is the brain, by the same fluids. The dura of the brain ends at the eye and blends with the sclera.

Increase of intracranial pressure spells an increase of perioptic nerve pressure, and in consequence, edema is produced in the papilla in that the fluids are impeded in flow from the globe.

Papilledema is an expansion of the optic nerve head, and not an inflammation. Therefore, there is no disturbance in vision, unless the edema has existed for a long period of time. If the cause of the edema is removed, the elevation of the optic nerve subsides and vision continues normal.

It is unfortunate that for so many years confusion existed as regards these terms, and that such an edema was designated a neuritis. A choked disc and a strauungpapille is a papilledema. An inflammation of the papilla is a papillitis; therefore, one may have a papilledema and papillitis.

To consider the many other problems that are revealed by the eye would carry us far along from the allotted time. Yet, I must stress the great assistance these ophthalmic changes are in making the diagnosis. Fields of vision are most valuable. They assist in localizing the growth after the discovery of the tumor is made, and the two can be classed as the outstanding symptoms that make definite an opinion on intracranial lesion.

Dr. G. C. Anderson (New Orleans): I think we are indeed fortunate to have Dr. Sachs here with us today, because he brings what may be considered absolutely the last word in accomplishment in the management of brain tumors. I purposely use the word "management," because it refers not only to the surgical side but to the diagnostic side, and also to deep therapy. To listen to an exposé of this kind is indeed inspiring, and it should provoke us who are working other places to bring our work as nearly as possible up to the standard that has been set in such clinics as Dr. Sachs'. Compare merely the report of the number of tumors, which he has been able to expose and remove within the past few years, with results obtained even five years ago, to say nothing of ten, and you will see the advance that has been made in the management of these conditions.

I do not feel there is anything to be added to what Dr. Sachs has presented here.

Dr. L. L. Cazenavette (New Orleans): It is not my intention to offer much discussion on the subject of this symposium, but, I feel that certain points should be emphasized even though they may prove to be a repetition of what has been said.

The first paper, read by Dr. Gorton, has been most illuminating. In all focal conditions of the brain, whether neoplastic, cystic or vascular, a perimetric examination should be made. The perimetric findings frequently help to localize the lesion and permit a better interpretation of other symptoms. In ordinary cases of hemiplegia of sudden onset due to vascular disease the perimetric findings are frequently abnormal. In accordance with the particular abnormal picture it is possible to localize the seat of the lesion, thereby adding a finesse to the basic symptoms on which the diagnosis rests. Although I am unable, at this time, to offer figures in explanation of the frequency of such occurrences, I have been surprised at the number of abnormal perimetric findings met with in cases of cerebral hemorrhage.

Dr. Young states that it is usually not difficult to make a diagnosis of brain tumor. I do not agree with this statement for I know that it is very difficult to make a diagnosis of brain tumor and localize the lesion no matter how complete our diagnostic armamentarium may be in this respect. Neurologically, I should say that symptoms pointing to lesions of the cranial nerves and their nuclei are of the greatest importance. I should like to ask Dr. Sachs if in his large experience he has met cases of so-called pseudo-tumors, or meningitis serosa, as reported by Dr. Frazier and others. I understand that papilledema, headache and vomiting are not usually found as symptoms of such conditions, the diagnosis resting more on the persistent symptoms of localization.

To make a diagnosis of brain tumor is a very important and very serious matter. To tell a patient that he has a brain tumor is equivalent to telling one he has cancer. The psychologic effect must be considered; this at times is very great. It is fit therefore to withhold our opinion until such time as will permit elimination of all other conditions capable of simulating brain tumor. Not infrequently encephalitic states may present a pic-

ture difficult to differentiate from that of cranial neoplasm.

Dr. H. R. Unsworth (New Orleans): I should like to ask Dr. Sachs if he will be kind enough to tell us what happens in the convulsive states following removal of the growths.

Dr. W. J. Otis (New Orleans): The unusual behaviors of children, which at times are forerunners of growths, are sometimes overlooked.

Dr. L. W. Gorton (Shreveport): The only thing that should have been added, I think, in the limited time given the paper, is that everyone having a definite reduction in vision in one or both eyes, without obvicus cause, should be thoroughly investigated for possibilities of brain complications.

Various colors should be used a great deal more than is the habit of the physician giving rapid practical field tests, for the value of any perimetric finding is equal to the amount of care with which it is done.

Dr. L. Roland Young (Covington): I want to say that in all suspected tumor cases a most thorough examination should be done. A so-called routine is necessary.

I notice Dr. Sachs impressed upon us the symptom of convulsions, a symptom we see so frequently which might often mean brain tumor.

In 1931 Dr. Sachs placed tumor of the brain as the third most frequent place in which tumors occur, and today he raises it to first. I feel sure it is due to the fact that we are better prepared to make a diagnosis of brain tumor, and because of his increasing ability in the handling of these tumor cases. Hence, they go to St. Louis to see h'm much oftener than they did in 1931.

Dr Ernest L. Sachs (St. Louis, Mo.): I should like to express my great appreciation, if I may, to Dr. Gorton and Dr. Dimitry for emphasizing what they did about papilledema. In years gone by those conditions so frequently used to be called optic neuritis and, as a result, were not truly recognized, as they are by the ophthalmologists today.

Regarding Dr. Cazenavette's question about pseudo-tumors, I think certainly a great many of the cases of so-called tumors which used to be in the literature were undiagnosed tumors. If we had had air injection in those days, I think a great many of those cases would have been localized. I think it was a term first introduced by Oppenheim. We certainly do see patients, I have seen a number of them in the last few years, who have eye ground changes, which the ophthalmologist and myself have both considered a true papilledema and not an inflammatory process, and who have absolutely no other sign of tumor. In those cases, we have done air injections, and if the air injection was normal we kept our hands off. I suppose those are the cases that formerly used to be called pseudo-tumors. As a matter of fact, I do not think they are tumors at all. They are either some form of inflammatory process or the so-called meningitis serosa circumscripta.

In regard to the convulsive states after operation, that is a problem that I think has caused us all a great deal of concern. Particularly after meningiomas have been completely removed, if a patient has had convulsions for a long time he may continue to have convulsions occasionally, but in the course of years they become fewer and fewer. I think the convulsions in those cases are due to scar. We keep them on luminal for a long time. In fact, nearly every case of meningioma is instructed to stay on luminal for at least a year to see if convulsions occur. If they do, they have to continue. They are very few and far between.

Dr. D. H. Duncan, (Shreveport, La.): It is somewhat unfortunate that Dr. Young has been given such a large subject to cover in such a short space of time, as he has, as a consequence of this, been able to touch but briefly some points that merit a rather detailed discussion. In spite of this, he has given an extremely interesting discussion of the major factors involved. I particularly like the emphasis which he has placed upon the necessity of the neurologist bearing the burden of diagnosis. It is frequently necessary, of course, to have the aid of specialists in other fields. Particularly is this true in the case of the ophthalmologist and the otologist. However, the responsibility lies with the neurologist in charge, and his study of the case should be such that the reports of his consultants, while of assistance to him, need not assume a primary place in his diagnostic impressions. I think that his case study should be sufficiently searching to include the more common of the auditory and vestibular tests, as well as field studies, and that he certainly should hold himself responsible for the interpretation of his roentgen ray studies. He is then in position to receive real benefit from the studies made by his consultants.

There is no symptom or sign which may be relied upon for the accurate diagnosis of these lesions, the most constant finding being the gradual progressive disturbance of neurologic function, the nature of the signs and symptoms depending usually upon the situation of the lesion and to a certain extent upon the rapidity of its development. For convenience they may be thought of as general signs, which are signs occurring as a result of increased intracranial pressure, and focal signs occurring as a result of particular location of the lesion.

It is readily apparent that accurate interpretation of the findings is a fair gauge of the examin-

er's neurologic orientation and that only the most complete neurologic case study can be expected to achieve a reasonable degree of accuracy. The more thorough the examination, the less frequently will it be found necessary to resort to special diagnostic procedures such as ventriculography or encephalography, which while of great value, should not be thought to take the place of detailed clinical examination. Though the problem of differential diagnosis, particularly in the case of intracranial vascular disease, may occasionally be difficult, the most frequent source of error is that the physician fails to consider the possibility of intracranial tumor, or awaits the development of pressure signs. In any case showing a progression of neurologic signs, not definitely proved to be the result of non-neoplastic pathology, tumor should be considered as highly probable, and proper steps taken to clear up the situation promptly. Occasionally this may be impossible as most of us have been embarrassed by tumors discovered at autopsy in cases in which other diagnoses were made, and occasionally also exploration fails to reveal tumors erroneously thought to exist. However, in most instances, a rather gratifying degree of accuracy is possible in cases sufficiently early to permit the neuro-surgeon to achieve worthwhile results.

THE CORRELATION BETWEEN THE INCREASE IN LONGEVITY AND THE HIGHER DEATH RATE OF DEGENERATIVE DISEASES IN NEW ORLEANS*

A. E. FOSSIER, M. D.
NEW ORLEANS

It has been frequently said that modern medicine, saving the lives of many weaklings, interferes with the process of natural selection by which resistance to disease is gradually built up. Certain diseases are on the increase: Bright's disease, hardening of the arteries, nervous disorders and cancer; in fact, there is an alarming increase in degenerative diseases among people who have attained the age of 50, while the expectation of life is not increasing. This viewpoint, which has been given wide publicity, is based, not on authentic figures, but on broad generalities and uncertain premises.

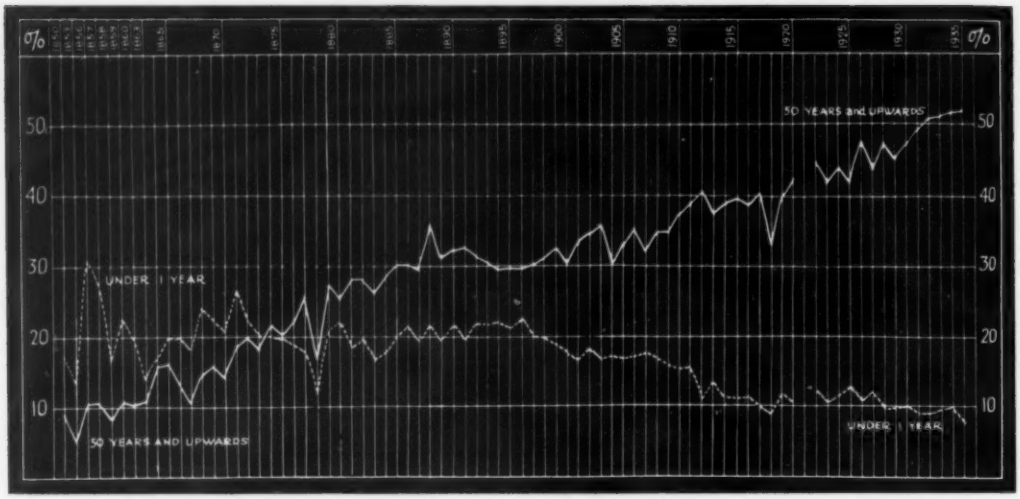
The purpose of this thesis is to show that because the deaths of infants, children and young adults have greatly diminished, life expectancy has increased considerably in New Orleans, and that its population has aged materially in the past fifty years. Also, that despite the fact that the so-called degenerative diseases have considerably increased during that time, longevity has increased, and even that the augmenting number of these illnesses has contributed to a large extent to longer life.

This study of the vital statistics of the Board of Health of New Orleans for the past 81 years has revealed many amazing facts, and were they not based on authoritative figures they would appear to be incredible.

Not so very long ago the mortality of infants under one year of age assumed formidable proportions, while the number of deaths, at 50 years and upwards, were on the other hand but relatively few. Not many who lived then attained old age. During the last half of the past century the highest percentage of deaths occurred between birth and the second year, and during the thirtieth and fiftieth years. Today the greater proportion of the population dies after the fiftieth birthday.

During the years 1850 and 1873, the number of deaths in infants, under one year, was greater than in those past fifty. During the period, 1874 to 1880, the two were practically on a par. From that time the death rate of infants under one year has diminished while that of those older than 50 has markedly increased. (Graph 1). In the 1850's the statistics show that the ratio of deaths, 50 years and upwards, to the total number of deaths, as as low as 4.1 per cent, and never exceeded 11.2 per cent, while that of infants, under one year, fluctuated between 11 and 31 per cent. Since 1880, the infant mortality has gradually declined, but after the age of 50 it gradually increased. Since that time the former has been reduced from 24 to 8 per cent and the latter has been increased from 25 to 53.3 per cent. These figures are based on deaths from all causes, irrespective of sex and color. The number of deaths among those who were older than 50 has enormously increased, and, consequently, life expectancy has augmented considerably. The number of elderly persons has steadily increased.

*Read before the Louisiana State Medical Society, Monroe, April 27, 1937.

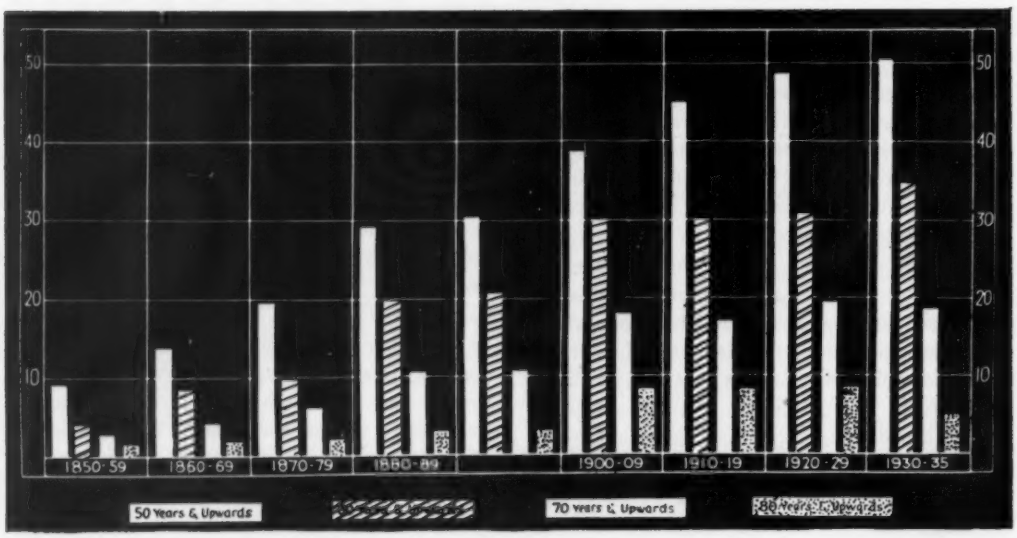


Graph 1. Percentage of total deaths of New Orleans for ages under one year and fifty and upwards.

Unlike many other great centers of population in this country, New Orleans has enjoyed a normal growth. Its accession in population depended not so much on the influx of young persons, as is the case in large manufacturing communities, but largely to its increase in births over deaths and to its ageing population. Of necessity its death rate must be slightly higher than in cities whose population comprises a larger number of younger people, and a deficiency in the proportion of old people. This fact is attested by the United States Census, for in 1930 only 14.5 per cent of the urban population of the country belonged to that age group.

In the six years, 1930 to 1935 inclusive, the number of deaths occurring after the age of 50 increased sixfold.

It is shown (Graph 2) that during the decade, 1850-1859, only 7.6 per cent of the total deaths, that is, those from all causes, and including both sex and color, occurred in persons



Graph 2. Percentage of total deaths of New Orleans for ages of 50 and upwards, 60 and upwards, 70 and upwards, 80 and upwards.

who had passed their fiftieth year, while during the years, 1930-1935, for the same ages, they have increased to 49.9 per cent. Today the percentage of the total deaths of persons 80 years and upwards is practically the same as of those past 50 years in the 1850's. For instance, during the same period, the percentage of deaths of individuals 60 years and upwards increased from 4 to 34 per cent, or more than eightfold. In the age group of 70 and upwards the increase was sixfold, and even in the very old, those past 80, the increase was threefold. During the past 85 years the proportion of deaths to the total mortality, both white and colored, occurring above the age of 50, increased from 8 per cent in the period of 1850 to 1859, to 52 per cent in that of 1930 to 1935. It is therefore evident that the gain in expectation of life has been enormously increased.

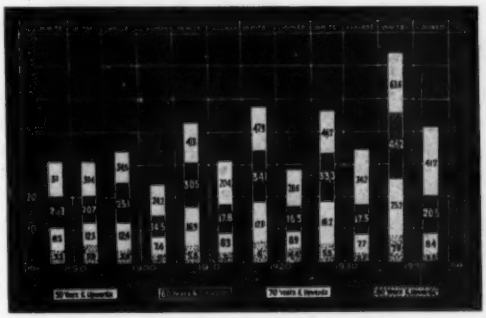
The baneful influence of the negro mortality on the longevity of New Orleans merits serious consideration. The colored death rate is much higher than the white and reflects a much lowered life expectancy of the population as a whole. The negroes, both male and female, die much younger than their white neighbors.

The deaths in New Orleans for the years, 1890, 1900, 1910, 1920, 1930 and 1935 are classified according to color. (Table I). In 1890, the negroes were on a par with the whites as to longevity; in fact, the percentage of deaths passed 50 and 31 per cent for the white and 30.4 per cent for the colored race. In this respect but little progress was made by the negroes during the years 1890-1930. While the percentage of deaths in the whites older than 50 years showed a very steady gain during the interval of 1900 to 1920, the negroes for the same age group registered a decided loss. (Graph 3). It was only in the year 1935 that the colored race showed an improvement. During the six years, 1930 to 1935, their increase was from 34.2 per cent to 41.2 per cent, while at the same time, for the whites it increased from 46.2 per cent to 63.6 per cent, or 22.4 per cent more for the whites than for the negroes. The discrepancy in longevity between the two races is eloquently shown during the period, 1900 to 1930, because in the year 1930, the per cent of deaths in the negroes who had exceeded their fiftieth year was approximately the same as the one for the whites in 1900, or 34.2 per cent for the former in 1930 and 34.5 per cent for the latter in 1900. The percentage of mortality for the whites passed 50 was 34.5 per cent in 1900, and 63.6 per cent in 1935, while that of the negroes was 24.2 per cent in 1900, and 42.1 per cent in 1935, a relative difference of 29.1 and 17 per cent, or an advantage of 12.1 per cent for the whites.

TABLE I.

Percentage of total deaths of New Orleans, whites and colored; for the ages of 50 and upwards, 60 and upwards, 70 and upwards, 80 and upwards.

	50 years and upwards		60 years and upwards		70 years and upwards		80 years and upwards	
Years	W	C	W	C	W	C	W	C
1890	31.0	30.4	20.3	20.7	10.3	12.3	3.2	5.9
1900	34.5	24.2	25.1	14.5	12.4	7.4	3.9	3.0
1910	43.0	20.4	30.5	17.8	16.9	8.3	5.8	3.0
1920	47.9	28.6	34.1	16.5	17.8	8.9	6.0	4.4
1930	46.2	34.2	33.3	17.5	18.2	7.7	5.5	2.5
1935	63.6	41.2	46.2	20.5	25.2	8.4	7.6	2.9



Graph 3. Percentage of total deaths of New Orleans, whites and colored, for ages of 50 and upwards, 60 and upwards, 70 and upwards, 80 and upwards.

The age expectancy of New Orleans is unfavorably affected by the high death rate of the negroes because, while in 1935 the number of negroes approximated only 28 per cent of the total population, they were credited with 41.2 per cent of all the deaths occurring at the age of 50 and upwards.

The death rate of women before they have reached their half century mark is greater than that of men, but after they have passed that

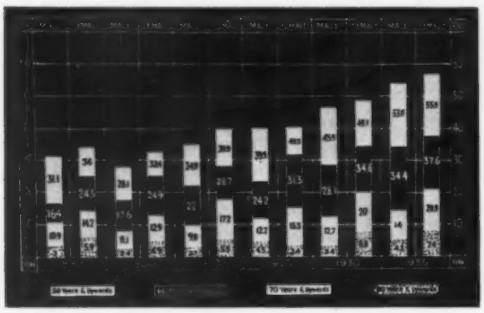
TABLE II.

Percentage of total deaths of New Orleans, males and females, for the ages of 50 and upwards, 60 and upwards, 70 and upwards, 80 and upwards.

	50 years and upwards		60 years and upwards		70 years and upwards		80 years and upwards	
Years	M	F	M	F	M	F	M	F
1890	31.1	34.0	16.4	24.5	10.9	14.2	3.0	5.9
1900	28.1	32.4	17.6	24.9	8.1	12.9	2.4	4.9
1910	34.9	39.9	22.0	28.7	9.8	17.2	2.7	5.5
1920	39.9	40.3	24.2	31.3	12.2	15.3	4.5	3.4
1930	45.9	49.1	28.1	34.6	12.7	20.0	3.4	6.8
1935	53.6	55.9	34.4	37.6	14.0	20.9	4.3	7.4

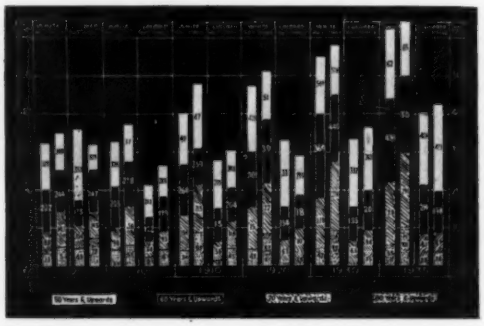
age their life expectancy exceeds that of their mates. (Table II).

In 1890, 31.1 per cent and in 1935, 56.3 per cent of the respective total mortality in the male was above the age of 50; in the females it was 34 and 55.9 per cent. This advantage on the part of the women has been consistently maintained during the past 45 years. (Graph 4).



Graph 4. Percentage of total deaths of New Orleans, males and females, for ages of 50 and upwards, 60 and upwards, 70 and upwards, 80 and upwards.

The percentage of the total deaths for the ages of 50 and upward, 60 and upward, 70 and upward and 80 and upward, classified according to sex and color is shown in Graph 5. The high percentage of deaths occurring after the age of 50 in the whites compared to the colored, both male and female, must be noted. The records for 1935 show that 63 per cent of the white males and 65 per cent of the white females, and only 40.5 per cent of the colored males and 42.1 per cent of the colored



Graph 5. Percentage of total deaths of New Orleans for ages of 50 and upwards, 60 and upwards, 70 and upwards, 80 and upwards; classified according to sex and color.

TABLE III.

Percentage of total deaths of New Orleans for ages 50 and upwards, 60 and upwards, 70 and upwards, 80 and upwards, classified according to sex and color.

	50 years and upwards				60 years and upwards				70 years and upwards				80 years and upwards			
	White		Colored		White		Colored		White		Colored		White		Colored	
Years	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
1890	32.9	34.8	35.7	32.9	20.2	24.4	17.5	24.7	8.8	14.1	10.4	14.3	2.3	5.0	4.5	7.3
1900	32.4	37.0	21.1	26.3	20.5	27.8	12.2	17.9	9.8	15.8	5.6	9.3	3.3	5.5	2.0	4.0
1910	40.0	47.0	27.5	30.3	26.4	35.9	15.0	20.4	13.4	21.5	5.8	11.4	3.4	8.9	1.8	4.5
1920	47.3	51.0	33.0	29.3	30.1	39.0	15.4	18.0	15.0	22.0	6.3	10.0	4.3	8.3	1.1	3.8
1930	54.9	57.8	33.2	36.2	36.9	44.9	15.5	20.0	17.8	27.4	6.3	9.4	4.7	9.2	1.7	3.5
1935	62.0	65.0	40.6	42.1	43.9	50.0	21.4	19.8	21.8	29.1	8.1	8.9	5.5	10.1	2.5	3.6

females died at the age of 50 or older. This shows that the whites exceed considerably the colored in longevity. (Table III).

Dublin and Lotka* state that by the beginning of the present century the life expectancy of the United States had risen to about 49 years, and "since 1900 the improvement has been even faster. At the time of the last census, 1930, our expectation of life at birth here in the United States was just about 60 years, and according to our life table for the year 1933 we had definitely reached 61 years."

Two important factors have unfavorably affected the death rate and the longevity of New Orleans: One, the high death rate of, and the relatively large number of premature deaths among the negroes; the other, the great number of non-resident patients admitted to the Charity Hospital.

Although in 1935, the negroes approximated only 28 per cent of the total population of New Orleans, they contributed 46 per cent of the total number of deaths, of which only 41.2 per cent occurred at the age of 50 and upward.

Patients from every section of Louisiana, and even from neighboring states flock to the Charity Hospital for treatment. In 1935, for example, 33,598 resident and 34,354 non-resident patients were admitted in that institution. Forty per cent of all the deaths registered in New Orleans happened in that hospital. Because it is an indisputable fact that relatively the same proportion of deaths among the resident and non-resident patients occur there, it must be assumed that the mortality of New Orleans is increased thereby by at least 20 per cent. Also by the same process of deduction it may be stated that there is the same ratio of deaths there among those who have exceeded their fiftieth year. In 1935, 1229 patients, or 37.7 per cent, died in that institution passed the age of 50. It may therefore be estimated that approximately 614 of these deaths occurred among the non-resident patients. The small percentage of deaths, 50 years and upward, among the non-resident patients of the Charity Hospital, must of necessity lower the table of rates of life expectancy among the residents of New Orleans.

*Dublin, L. I., and Lotka, A. J.: Money value of life and life expectancy, Am. J. Pub. Health, 17:549, 1927.

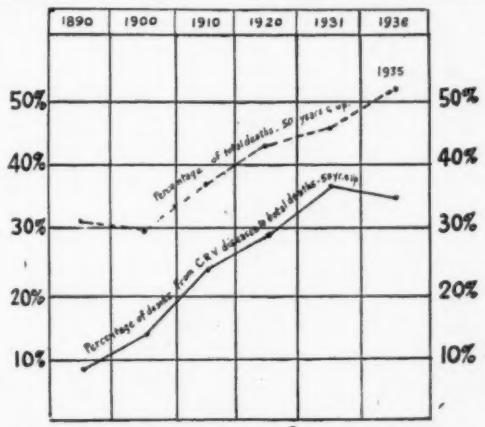
THE DEGENERATIVE DISEASES

It cannot be gainsaid that the augmentation in the so-called degenerative diseases must result directly from an increasing longevity. The more aged individuals there are in a community the greater will be the number to succumb from these maladies.

For the purpose of this survey the following diseases have been grouped under the heading of cardio-reno-vascular; cardiovascular; heart; mitral regurgitation; angina pectoris; coronary thrombosis; apoplexy; nephritis and arteriosclerosis.

Fifty thousand eight hundred and ninety-two death certificates were scrutinized. For the purpose of comparison, they were classified in the following chronologic order: 1880, 1890, 1900, 1910, 1920, 1931 and 1935. The average age of death was computed by dividing the total ages of death by the number of cases. They were tabulated in the following age groups: 49 years and under, and the ages of 50, 60, 70, 80 and upward.

In Graph 6 is exhibited the relation of deaths from cardio-reno-vascular diseases, occurring at the age of 50 and upward, to the total number of deaths from all causes for the same

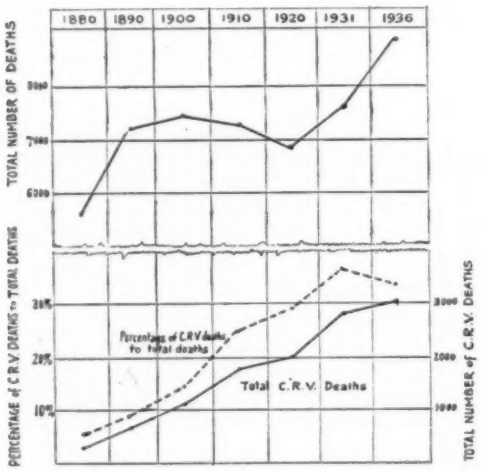


Graph 6. Relation of deaths 50 years and upwards of cardio-reno-vascular diseases to the total deaths occurring 50 years and upwards.

age group. A glance at the figures shows that the older a people die, the more numerous will be the victims of the cardio-reno-vascular diseases. The total deaths passed the age of 50

increased from 32 per cent in 1890 to 48.9 per cent in 1931, and 52.5 per cent in 1935. The mortality from the cardio-reno-vascular diseases, for the same age group, grew from 9 per cent in 1890 to 36.8 per cent in 1931, and 34.8 per cent in 1936. The increase for the former was 20.5 per cent and for the latter 25.8 per cent.

The ratio of the total number of deaths to those caused by cardio-reno-vascular diseases is shown in Graph 7. The number of deaths registered in New Orleans for the years 1880 was 5,623; 1890-7,328; 1900-7,424; 1910-7,252;



Graph 7.

1920-6,869; 1931-7,674, and for 1936-8,812* Of these the cardio-reno-vascular diseases were the cause of 298 deaths in 1880, 674 in 1890; 1,042 in 1900; 1,791 in 1910; 1,991 in 1920; 2,822 in 1931, and 3,070 in 1936.* It is probable that because of better diagnostic methods many more of these diseases are recognized today than even was possible in comparatively recent years, yet this does not negate the fact that the longer a people live the more subject they are to their ravages.

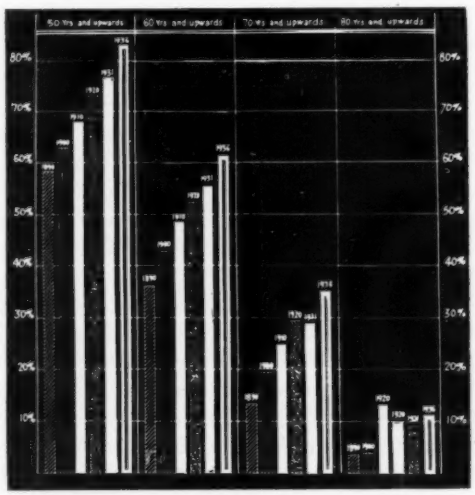
In Table IV is given the relative percentage of deaths from the cardio-reno-vascular diseases occurring at the age of 50 and upward; 60 and upward; 70 and upward; and 80 and upward for the years 1880 to 1936. This table definitely shows that today the victims of these maladies die much older than ever before. For instance, the percentage of deaths from these diseases, in persons who had passed their half century mark, has increased 24.2 per cent, or from 56.6 per cent in 1880, to 81 per cent in 1936. For those 60 years and upward, 25.3 per cent, or 36.2 per cent in 1880 to 61.5 per cent in 1936; 70 years and upward, 21.8 per cent, or 13 per cent in 1880 to 34.8 in 1936; and 80 years and upward, 7.6 per cent, or 3.6 per cent in 1880 to 11.2 per cent in 1936.

TABLE IV.

Percentage of deaths from cardio-reno-vascular diseases occurring previous to the age of 50, and the ages of 50 and upwards, 60 and upwards, 70 and upwards, 80 and upwards.

Years	49 and below	50 and upwards	60 and upwards	70 and upwards	80 and upwards
1880	41.4	58.6	36.2	13.0	3.6
1890	37.0	63.0	44.2	21.6	5.2
1900	37.5	62.5	42.9	19.6	3.7
1910	32.4	67.6	48.7	25.0	13.2
1920	27.9	72.1	52.3	29.7	10.7
1931	23.6	76.4	54.7	29.2	9.3
1936	19.0	81.0	61.5	34.8	11.2

In Graph 8 is given at a glance a good idea of the remarkable improvement made in this



Graph 8. Percentage of deaths from cardio-reno-vascular diseases occurring at the ages of 50 and upwards, 60 and upwards, 70 and upwards, 80 and upwards, for years 1890-1900-1910-1920-1931 and 1936.

*This great increase in 1936 evidently was due to the large number of cases of influenza.

respect during the past 56 years. Not only a greater proportion of these patients die older than before, but the average age of death has increased materially during the same period.

In Table V is given the average age of death from diseases comprising the cardio-reno-vascular group.

TABLE V.

Average age of death from diseases comprising the cardio-reno-vascular group.

Years	Cardio-vascular	Heart	Mitral regurg.	Angina pectoris	Coronary thrombosis	Apoplexy	Nephritis	Arterio-sclerosis
1880	.....	51.2	54.2	61.5	.....	60.0	51.4	.....
1890	48.0	57.6	56.0	58.6	.....	62.3	47.4	.....
1900	55.4	54.6	59.9	51.1	.....	63.0	48.7	64.0
1910	57.4	56.5	57.0	54.6	.....	57.9	53.1	72.2
1920	63.0	52.0	57.3	62.5	.....	62.0	53.3	73.8
1931	61.5	59.2	58.5	59.0	67.6	61.5	56.5	70.0
1936	66.8	64.9	60.0	60.7	63.0	65.9	55.6	76.3

The sufferers from the cardiovascular diseases have shown a very definite gain in longevity. The average age of death from this cause was 48 years in 1890, while in 1936 it was 66.8 years, an increase of 18.8 years.

Under the classification of "heart" are included aortic valvular diseases, (but rarely mentioned as a cause of death), myocarditis, endocarditis, chronic vascular diseases, auricular fibrillation, heart diseases and other indefinite cardiac nomenclatures. Life has been extended in heart diseases 13.7 years. In 1880, the average age of death was 51.2 years, and in 1936, 64.9 years, a gain of 13.7 years.

Mitral regurgitation was frequently mentioned as a cause of death. Life was prolonged in this instance only 5.8 years. The average age of death was 54.2 in 1880 and 60 years in 1936.

Angina pectoris has shown but little improvement. The diagnosis of coronary thrombosis has only been made recently. The number of deaths from angina pectoris has diminished from 161 in 1931, to 48 in 1936, while the fatalities from coronary thrombosis have increased from 36 deaths in 1931 to 315 in 1936. It can be surmised that in 1931 many deaths were ascribed to angina pectoris which may have been caused by coronary thrombosis, while in 1936 the reverse would hold true. At this time it is difficult to determine the extent of the mortality from coronary thrombosis because there is a possibility that the profession may be apt to magnify the frequency of that disease.

Patients die from apoplexy at an older age. The gain has been 5.9 years. In 1880, the average age of death was 60 years; in 1936 it was 65.9 years. It is very gratifying to note that the greatest increase was during the past six years, an increase of 4.4 years.

The little improvement shown by Bright's disease was to be expected, because nephritis, which is so frequently a sequela of infectious diseases, affects the young.

Arteriosclerosis has frequently been ascribed as the direct cause of death. Apparently victims of hardened arteries enjoy longer life. The average age of death from this condition was 64 years in 1900, and 76.3 years in 1936, a gain of 12.3 years. The greatest improvement in this respect took place in the past six years, for the statistics show that life was prolonged by 6.3 years in the interim.

Hypertensive diseases were classified with the cardiovascular diseases unless complicated with nephritis.

The percentage of deaths from diseases comprising the cardio-reno-vascular group to the total number of deaths from all causes is shown in Table VI. The incidence of mitral regurgitation has changed but slightly during the past 46 years, while that of the cardiovascular diseases, heart diseases, apoplexy and nephritis has greatly increased.

It is interesting to note that since the beginning of this century although there has been a marked increment in the percentage of deaths from the cardio-reno-vascular diseases, the average age of death from these causes has materially increased. For instance, the incidence of deaths from cardiovascular disease has increased 5.2 per cent, while the life expectancy of the sufferers of that malady has

*Sudden deaths most probably caused by coronary thrombosis were frequently ascribed to acute indigestion or acute Bright's disease.

TABLE VI.

Percentage of deaths from diseases comprising the cardio-reno-vascular group to the total number of deaths from all causes.

Years	Cardio-vascular	Heart	Mitral regurg.	Angina pectoris	Coronary thrombosis	Apoplexy	Arterio-sclerosis	Nephritis	Total C. R. V. Deaths
1890	.....	4.1	.73	.....	.....	1.9	.....	2.3	9.
1900	6.6	5.3	.9	.....	.....	1.9	.25	4.6	14.
1910	1.9	8.9	1.	.39	.....	3.7	1.1	7.5	24.7
1920	3.1	9.6	2.	.64	.....	5.3	1.6	6.5	29.
1931	8.5	13.5	1.1	2.	3.3	7.	.33	3.2	36.8
1936	5.8	9.7	.76	.54	3.5	7.5	.7	5.3	34.8

been extended 11.4 years. Heart disease, 5.6 per cent and 10.3 years; apoplexy, 2.5 per cent and 3.8 years; and nephritis, 1.7 per cent and 6.9 years. For the whole group 24.8 per cent and 12.3 years.

It is gratifying to note that in 56 years the percentage of heart deaths, in the age group of 10 to 49 years, has diminished from 41.4 per cent, or a gain of 22.4 per cent, while in the ages of 70 and upward it has increased from 13 to 34.8 per cent, or 20.8 per cent.

These statistics definitely prove that the expectancy of life in New Orleans has been enormously increased, not only because of the decrement in the mortality rate of infants, adolescents and in young adults, but as well in the increasing longevity after the fifth decade. This gain has not only manifested itself in the general mortality, but in that caused by the degenerative diseases.

It is a moot question whether this prolongation of life by sufferers of these degenerative conditions is due to their being acquired later in life than before, or to better therapeutic measures.

The story which these statistics tell is certainly not what would be expected after listening to the doleful prophets of decreasing longevity. These statistics definitely prove that the expectation of life in New Orleans has been enormously increased, not only because of the greatly lowered mortality in infancy, in adolescence and at maturity, but as well beyond middle age. This gain has not only manifested itself in the general mortality, but in the death rate of degenerative diseases.

Dublin and Lotka* state that "Without going into detail, we may recall the familiar fact that the greatest reductions in mortality have taken place in infancy, so that the gain in expectation of life is greatest at birth. However, there are gains in childhood and adolescence and maturity, although one of the facts which we have to record with regret, is that from mid life on, gains have in recent years been but light, and in some recent decades the expectation of life at these ages has actually suffered a set back."

SUMMARY

It may be definitely stated that in New Orleans the duration of life has not been curtailed by the greatly increasing number of deaths from the degenerative group.

The degenerative conditions, including diabetes, have increased in 34 years (1900 to 1934) 54 per cent, according to the United States Governent Mortality Statistics. In New Orleans, deaths from that group of diseases, exclusive of diabetes, have increased in 36 years, (1900 to 1936) from 1042 to 3070, or nearly 300 per cent.

The negroes, because of hard work, exposure, improper housing, ignorance of the principles of sanitation, the greater prevalence of syphilis among them, and their greater susceptibility to the infectious diseases, are more subject to the degenerative diseases. This is not due to racial or inherited tendencies. They

*Dublin, L. I., and Lotka, A. J.: Money value of life and life expectancy, Am. J. Pub. Health, 17:549, 1927.

are the victims of their environment and ignorance. Amelioration in this respect is already taking place, and it may be safely predicted that in a few years that they will enjoy longer life.

It must be deduced that the "degenerative" conditions will increase. They are the terminal diseases of the elderly, and the more a population ages the more the deaths from them will become relatively preponderant.

The discovery of a cure, or a prophylaxis for cancer, or even more accurate methods for its earlier diagnosis will still further materially extend life expectancy. The eradication of the infectious diseases and a better control of syphilis will to a large extent reduce the incidence of, and retard the premature deaths from the cardio-nephro-vascular diseases.

Compulsory health measures have accomplished to a great extent their aim. Now we must rely more and more on the education of the masses in health matters. The public must be taught how to protect itself. People must be educated, when young, how to live so that they may attain old age. This is one of the problems which confront the medical profession today.

DISCUSSION

Dr. A. A. Herold (Shreveport): As Dr. Fossier says, one of the greatest causes for death from degenerative diseases is the fact that we know more about pediatric diseases. Thanks to the pediatricians and internists, infants, children, and young adults live longer than heretofore. Therefore, the people have to die of something and they fall back on these cardio-renal-vascular diseases.

I think it is to be regretted that our nomenclature is not more definite. I notice in "Causes of Death," the only valvular disease which is specified is mitral regurgitation. We know they might have aortic insufficiency and other valvular diseases, and why mitral regurgitation should be put in a class by itself, I cannot see.

Another cause for confusion is the fact that a great many doctors, I must admit I am confused, hardly know what to put as the cause of death on a death certificate. You want to state first the principal cause of death, and then you want to state the predisposing or complicating disease, which is sometimes rather confusing. I think in many cases the wrong disease is specified as the cause of death. In cardiovascular disease, where a patient has a simple attack of influenza, the cardiovascular disease is the cause of death, and the influenza is the contributing factor. We see the influenza given as the cause of death, with cardiovascular disease and Bright's disease as contributing causes.

Another interesting feature of this, from a selfish standpoint, is the fact that more and more doctors are victims of cardiovascular-renal disease than ever before. For years I have compiled statistics from the Journal of the American Medical Association every week as it comes out, to see what percentage of the doctors who die, where the cause of death is stated, have died of cardiac disease alone. Sometimes it shows as high as 35 or 40 per cent, including accidents, homicides, and so forth. It is a point of interest to us personally from a selfish standpoint.

The lesson I get from Dr. Fossier's paper is that we should do our best to combat the degenerative diseases and try to prolong our lives and our patients' lives. I think we have started on that track by urging periodic health examinations, because very frequently the secret of prolonged life is in detecting these diseases early.

As Dr. Fossier says, when we get to know more about stopping cancer and can do more about the syphilis problem, especially among the negro, the proportion of these degenerative diseases will be bound to rise, because they will be about the only ones left, except accidental deaths.

Dr. R. McG. Carruth (New Roads): This question has been coming up now for a number of years, and I presume it will continue to be a cause for a perennial discussion. It is always interesting.

Everybody, or nearly everybody, wants to live as long as he can enjoy good health. I was amused at my friend, Dr. Herold, when he said that people have to die of something anyhow. I do not know about that. It is a question whether they have to die or not.

When I was about 70 years of age, possibly you consider this something of a joke, I organized or said that I had organized or was going to organize a Methuselah Club, not that you had to live 969 years, but there was no reason why a man should die. Every few years we get some new fads, and I have followed some of those fads myself from the time I was forty-five years of age. I tried experiments on myself, the no-breakfast plan, and the no-meat plan and gave them all up—but I am not discussing diets.

The last book on diet I bought contained this expression from Sir Arbuthnot Lane, who was over here delivering lectures for a while at Johns Hopkins, I think: "No man dies a natural death."

Dr. Raymond Pearl sent me one of his papers,

"The Aging of the Human Brain." He said he had autopsied brains from the fetus in utero in all kinds of animals, monkeys, man, and so forth, and the oldest he had ever autopsied was an old woman 117 years old. You remember old Agar Asa who claimed to be 156 years of age. Doctor Pearl said these cases could not be authenticated; that he found the same plaques, the same conditions of degeneration in that old woman's brain that he found in a man of forty or a woman of fifty, sixty, or seventy years, generally tuberculosis, syphilis and alcoholism. So that they do die of something; they do not die just of old age.

I look for the time to come when the question will be what shall we do with these old people? I spent a couple of months in New Orleans recently, and I noticed more old men on the street, and more stout women, commonly called fat women, than I ever saw in the days of my youth. As I come to these conventions year after year, I notice a great many of my confreres are becoming bald. I notice they seem to be in good health, but I notice more old men and fewer young men in the groups that I meet today than I did years ago, and I have been coming a good while. If we do not dig our graves with our teeth, there is no reason why we should not extend human life very, very far; maybe too far, and men will become a burden. There was a time among some of the ancient races, and some of the savages today, when they put the old people to death because they had become a burden to the community. I do not think this will ever happen in a civilized, Christian country, but we may find ourselves burdened by an excess of old people.

Now as to what all this has to do with the increases in the proportion of cancer cases, I do not know, but we should naturally suppose that as more people reach the so-called "cancer age," it will naturally increase the incidence of cancer. But Doctor Lane thinks he has solved for himself the diet question as he said "I shall never die of cancer," and I am inclined to agree with him.

Dr. A. E. Fossier (In conclusion): Dr. Carruth said something that struck me very forcibly, and that is we have more old people today than we ever had before. I remember when I was a child, everybody looked up to a man of my age as a patriarch, and with reverence. They thought he was very old. He would probably be in his fifties, and he would die around the fifties.

When I was a child, only about 7 or 8 per cent of all the people died above the age of 50. The other 93 or 94 per cent died younger than 50. Being interested in that subject and looking at some of the tombstones in New Orleans, I remember some of the old people who made an impression with their top hats, their redingotes, their beards, their aged appearance and venerable looks. I found they all died comparatively young. One of the reasons is that not so very long ago we were plague infested. Yellow fever, small pox, diphtheria and other infectious and contagious diseases were killing many of our children and young adults. The eradication of these diseases has contributed greatly to our longevity. The figures are amazing.

In view of these facts, the mortality tables of life insurance companies need revision because the "American Experience Table of Mortality" was developed in 1868, and the "American Men Table of Mortality" was published in 1918, and was based on the mortality experience of the leading life insurance companies of America and Canada between 1900 and 1915. Even today the "American Experience Table of Mortality" is the basis of insurance rate computation by a majority of the life insurance companies.

SOME COMMON CONDITIONS AFFECTING THE HEART*

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In choosing this subject and discussing it as I will, I know that this presentation will seem elementary; however, I feel that while there is nothing new any of us will learn from it, we will refresh our memories with some of the fundamentals of the practice of medicine which are occasionally overlooked or forgotten.

Reviewing the case records in my office, it was noted that a large percentage of patients complained of weakness, tachycardia, fatigue and general "let down" feeling. This usually dated back to a recent mild acute infection or an operative procedure. The patient was questioned carefully as to postfebrile and postoperative care, and it was noted that the care in the convalescent stage was definitely inadequate.

Heart disease is definitely on the increase and is occupying a paramount place as a cause of death and disability. Emerson[1] estimates that 1 per cent of the population constitutes the total of heart patients and that the cost

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of nursing and medical care for a year is between $89,000,000 and $100,000,000. This estimate is based on approximately 1,150,000 cardiac patients. There is an appalling loss of earning power due to heart disease and yearly this is increasing. Emerson estimates that this loss to the present generation based on the 1928 population would be $1,502,198,355.00. Therefore, it behooves each one of us to give this condition deep thought and consider all factors that may be responsible for an unnecessary increase in this dreaded disease.

ETIOLOGY

In reviewing the causes of chronic myocarditis in textbooks, it is noted that the disease is traceable to one or more of the following factors: an excess in the use of alcohol or tobacco, lead poisoning, gout, rheumatism, diabetes, chronic nephritis, malaria and syphilis. "There is a group of cases due to primary foci of infections in some other organ than the heart, such as teeth, tonsils or gallbladder."

Herrmann[5] states, "Acute respiratory infections may precipitate symptoms (myocarditis) in one previously apparently sound. In general, however, the acute myocardial degeneration is much less serious and stops with the subsidence of the febrile or toxemic state. It is thus self limited, lasting for a brief time only and often presents no definite signs or symptoms. There is a tendency to prompt and complete recovery in all but a few instances of the usual infections."

Harlow Brooks[6] states, "Perhaps most important of all, since it is probably the most common of all and, in many instances, among the most insidious and unexpected, are the infections. Certain of them are more prone to invite heart failure than others, such as, for example, diphtheria, influenza, pneumonia, typhoid fever, and others."

I wish to call to mind the effect that the common acute infections, such as influenza, tonsillitis, pneumonia, typhoid and other febrile diseases have on the heart. In these diseases it has been demonstrated that there is a mild to moderate myocardial damage and that chemical as well as microscopic changes take place in the heart muscle cell.

It is well known that during the febrile state, due to the increased metabolism, there is an expected rise in the heart rate of eight to ten beats per degree of increased temperature. This, in itself, means more work for the heart muscle. It is expected that the systolic blood pressure will fall, thus producing a diminution of the circulation in the coronary vessels.

The increased demand on the heart for more work and the decrease in the coronary flow alone, without considering the effects of the toxins of the specific disease, might well account for myocardial damage. In reviewing the histories of some of my cases of chronic myocarditis as well as the histories of some cases that terminated fatally of an apparently mild acute infection, my attention has been focused more and more on the past history of acute and chronic infections as a cause of the myocardial failure. I have carefully questioned the patient as to his care throughout the disease and particularly the care through the convalescence. In general, it was noted that in the majority of mild or moderately severe infections, he was seen a few times and occasionally not at all by his physician during the febrile state and not at all through his convalescence.

The acute infectious diseases such as have been mentioned, I believe, play a large part in laying the foundation for future cardiac failure. We are all too prone to consider the disease as one producing fever and general malaise and that the patient is well when the temperature is normal and the focal manifestations of the disease have subsided. If these cases were followed carefully, it would be noted in many that there was a lasting drop in blood pressure and an increase in heart rate for many weeks or many months following a so-called mild acute infection.

SYMPTOMS

The signs and symptoms of myocardial injury frequently do not manifest themselves until the convalescence. That is when the patient begins to sit up, walk or return to work. The heart muscles have been weakened but an undue feeling of weakness, fatigue, and especially shortness of breath or breathlessness, accelerated pulse and fall in blood pressure on slight exertion must be viewed with suspicion of be-

ginning myocardial failure. Observation and proper treatment through the convalescence is as important as through the febrile state of the disease.

It is a common occurrence for the physician to be asked by the patient after his temperature has reached normal, "When can I get up and when can I go back to work?" This question should not be answered carelessly or hurriedly, but the matter of observation through his convalescence, if there are any of the well-known signs of myocardial weakness present, should be discussed at length with the patient. He should be made to realize that care through the convalescence will give his myocardium the best chance for its return to normal.

PROGNOSIS

As physicians we do not wish to make the patient a neurotic or heart conscious; neither do we wish to subject him, through our carelessness, to an early heart failure. In young individuals whose myocardia have a great reserve, acute infections are overcome easily, leaving little or no demonstrable heart muscle damage. It is hard then to make the patient or his family realize the advantages of a slow, cautious convalescence. We must look forward 10 or 20 years later when he is again suffering from an acute or chronic infection. He then will depend on his myocardium to carry him through and its failure in the latter infection may be due to the irreparable damage or loss of cardiac reserve as a result of improper convalescence or an infection in youth.

It must be carefully considered that the young girl with influenza or other febrile diseases, may in years to come depend upon her myocardium to carry her through pregnancies and diseases. Therefore, another reason for careful, guided convalescence in youth is evident.

MANAGEMENT OF PATIENTS

I wish to mention a routine that I have found very satisfactory in handling the acute infectious diseases as well as other diseases. In addition to specific or routine treatment, record is made of the pulse, blood pressure in all cases and, when practical, a complete blood picture consisting of the red cell count and hemoglobin at the onset of the disease. This is checked from time to time throughout the febrile state and such medication as is indicated is given. After the febrile state is passed, especially in the middle-aged class, convalescence is discussed with the patient at length, convincing him that he should take care of his heart. He is instructed to sit up and note any undue rise in pulse rate or undue fatigue. A normal increase of 10 beats is expected and to sit up until tired, but not fatigued, is all right. If he tolerates this well he is allowed to walk slowly and observe his pulse. His blood pressure and blood count are taken at intervals and, as the pulse, blood pressure and red cell count and hemoglobin approach normal, he is allowed to return to light work and gradually his normal routine.

Following the usual illnesses there is, in most cases, a secondary anemia. This, in itself, will produce inadequate nourishment for the heart and should be given special attention. The anemia can usually be overcome by simple, usual remedies.

This routine, I believe, will prevent overtaxing a weakened heart muscle and prevent any unnecessary permanent damage. It will also show many cases of mild myocarditis which will never fully return to normal. With this information, the physician can advise the patient competently as to his exercise and mode of living. This should prevent, for many years, the onset of the inevitable cardiac circulatory failure.

The diet in the febrile and convalescent state should be of high caloric value. This is demonstrated by Porter and Bloom[3] in their review of the heart in typhoid fever. They state, "A study of the literature dealing with typhoid fever prior to the use of high caloric diets indicates that the toxemia of the disease was much greater and that serious cardiovascular complications were common. One ventures the conclusion that the reduction in the serious circulatory complications may be attributed to the character of the diet now employed in the care of typhoid patients."

CONCLUSIONS

Many years of useful life can be added by early recognition and proper management of a weakening heart. The pulse and blood pressure readings should be taken at frequent in-

tervals during any illness and especially through the convalescence. The heart may be normal at the onset of acute infections, but may be unnecessarily permanently damaged by carelessness during the period of convalescence.

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DISCUSSION

Dr. S. Chaille Jamison (New Orleans): Dr. Hunter has brought up some controversial points that most of us do not know how to solve satisfactorily. First of all, when treating infectious disease, or when called in to see surgical cases, or when called in by surgical friends to see those who are subject to trauma, it is necessary to determine the state of the vascular system.

I believe that the poisoning seen in the acute diseases, postoperative cases, or traumatic cases, is not to be attributed necessarily to degeneration of the myocardium. There is usually a question of vascular failure, and if the blood pressure and pulse rate were observed a great deal more than auscultation of the heart, a truer picture would be obtained. Treatment must be directed toward peripheral vascular failure and not directed toward the heart.

That is entirely a different question from the one Dr. Hunter has brought up, which is the question of how much damage is done by mild infections to the intrinsic structure of the heart. It is a question that I have never been able to solve. I have never been able to assure myself if a man had grippe, typhoid, or some other acute infectious disease, as to how much his heart muscle is damaged.

At the autopsy table we do not get very much more help than in the clinic. The pathologist talks about fatty degeneration and albuminous degeneration, and he shows us a heart muscle that is a little flabby. He does not show us other muscles in the body at the same time to compare with that point. Actually, the pathologist does not know.

Some help may be obtained from electrocardiographic studies. Statistics show there are changes in electrocardiographic tracings lasting for weeks after the infectious disease, when there are no other signs. Whether or not this is to be taken as a sign of heart disease, and especially heart muscle disease, I again do not know, because I can show you many men, walking around and leading active lives without any signs of failure, but with very deformed electrocardiograms.

I think we have to steer a very unsatisfactory course. In the first place, we have to be careful in these days not to make our patients heart conscious. The person who is heart conscious is a worse nuisance to his doctor than a man with real heart disease. Following what is called grippe or influenza, all of us must be impressed with the frequency with which we get the story, "Doctor, I was perfectly well until I had the flu, and since that time I have been a little short of breath. I have been conscious of my heart beat. I am weak, and I am feeling badly." I think we should keep these patients in bed as long as the heart rate is too fast, as long as the blood pressure is too low, as long as the sounds are more valvular than they are muscular. My own course has been, and it has not been very successful because patients will not pay any attention, to insist on at least a week's rest in bed following an infectious disease. I am very much inclined to the idea that in the young group with intact heart muscles the damage is not very great; the older group of men and women who have had the wear and tear and the damage of years to their hearts, the least infection is very likely to be fraught with danger to them.

We are entirely too careless with many of the mild infections with regard to the heart. If I could, I would see every such case at least twice for the three weeks following the acute infection. I would have an electrocardiogram, and I would make him take two days out of the week for rest in bed.

Dr. G. F. Fasting (New Orleans): I want to keep the heart in mind both with regard to acute infections and these low grade silent infections. In the medical literature of late, there has appeared a certain amount of information which I think in a few years' time will have quite a bearing on the question of cardiac function. Continued life of the heart does not depend exclusively on how the heart works at a given moment, nor on the actual damage that may be present.

It does appear, from work in acute infectious processes, that the adrenals are severely damaged and it appears evident in the so-called low grade infections with low grade fever that similar damage is produced. In so-called grippe and influenza in which sequels may border on encephalitis, one characteristic feature is a hypotension, and I

believe this can be traced to a toxic effect on the adrenals.

In the work that is being published on cortical extract, we are learning now how vital this cortex is in Addison's disease. We know also that if the sodium potassium balance is not right death may follow immediately.

It appears to me that we should keep in mind these low grade silent infections. While they have no obvious pain, and while they are most insidious, if it is true that they work by poisoning the adrenal cortex, indirectly the damaged cortex is going to tell its story some day on the heart. And it may readily happen that at the autopsy table the pathologist may not be able to tell why the patient died.

Dr. Melville W. Hunter (In closing): It was not my intention to put down the acute infectious diseases as primary causes of the beginning of a myocarditis, but to try to bring out that possibly they did have some influence on an already degenerated heart. The heart wears out through the wear and tear of work, of sleep, of pleasure, and of what not. It also must wear out partly due to the general infections that we have to carry through.

I do believe we have all been negligent in observing our patients during their convalescent period. I do believe we can educate the public to be observed by their physicians through the convalescent period. If we do, we will have added something to their longevity. I may be all wrong, but I think we can.

I had the opportunity of seeing a man who went through lobar pneumonia. On the fourth or fifth day, after he was fever free, he got up. He had violent anginal pains, went back to bed and stayed two days, and again had violent anginal pains. We took a curve on him, and at that time he had an intermittent auricular flutter. It was a beautiful curve; it came and went, the normal curve and then the flutter. I was feeling his pulse all the time and thought it was regular, and then I saw the curve. That man was seen every three weeks for three months. The cardiogram has straightened out to normal, and his blood pressure has come up. It took three attacks of anginal pains to convince him that his physician was probably right.

My own father had the flu; he died twelve months later as a result of hypotension, myocarditis and chronic nephritis following the flu. With that in view, I have thought the flu laid the foundation for some of the deaths in the future.

I have had another group of men who suffered more or less severe flu infections. They were left with a low blood pressure and tachycardia. They did not take care of themselves and continued to work hard, long hours. The following year, one man in particular suffered a mild flu, with temperature from 99° to 100°. He was not sick at all. On the third day of that disease he suffered a vascular collapse, whether cardiac or peripheral makes no difference, and died. I believe that man would have had a better chance if he had been properly taken care of through the convalescence of the disease the year previously.

MODERN TRENDS IN THE DIAGNOSIS AND TREATMENT OF SYPHILIS*

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INTRODUCTION

The term "modern" used in connection with syphilis has certain connotations peculiar to that subject which I should like to touch upon for a moment. If we are to believe the evidence accumulating in the form of syphilitic bones uncovered in various parts of the Western hemisphere, syphilis as a disease is at least as old as the history of man on this continent. Syphilis as a definite entity did not become generally recognized throughout Europe until after Columbus' return to Spain from his first voyage to the West Indies. It took four hundred years after that for "modern" diagnosis and treatment to make their appearance, in the discovery of the Wassermann reaction, the identification of the causative organism, and the perfecting of a specific drug, arsphenamine, to displace that old cure-all mercury—all these in the early 1900's. This means that physicians now in their forties were the first to have the opportunity of acquiring the new knowledge during their medical training, if indeed their medical schools were advanced enough to include it. Like most ultra-modern commodities, the new knowledge of the early 1900's was full of imperfections. Treatment especially was a matter of trial and error, and the list of patients who were cured of their syphilis but died of the cure would probably be appalling if known.

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*Presented before the First New Orleans Graduate Medical Assembly, March 10, 1937.

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In view of these facts, it is not surprising that the general practitioner now in his prime has for the most part looked with a wary eye upon "modern" methods of dealing with syphilis. Between mercury, respectably established for four hundred years, and arsphenamine with less than thirty to its credit, while bismuth has barely fifteen, his choice has been only natural. If he tries an arsphenamine, he is likely to choose neoarsphenamine, because it has been lauded as less toxic than old arsphenamine, the original "606" and he can make up for its therapeutic shortcomings by giving larger doses, or so the literature has led him to believe. He quite properly does not wish to try every new remedy on his patients merely because it is "modern". He is waiting for time and experience, that is, other peoples' experience, to show him. And you cannot blame him.

Meanwhile the lowly spirochete, in spite of occasional setbacks, threatens to inherit the earth. Until now, the attitude of the general public toward syphilis has been, mildly speaking, Victorian. In what are usually referred to as the "best circles", it has been antediluvian. It is a curious anomaly that in an era characterized by the almost universal throwing off of inhibitions in other fields, the very subject of syphilis should remain consistently taboo. It is only now when the disease has become so widespread as to constitute a public health menace of the first magnitude that the problem is being forced into the open. The physician may no longer pursue his peace-at-any-price policy. He must arm with the best weapons available and adopt militant tactics. The problem before us is "How?"

Those of you who happened to be present in Washington a few months ago must have been impressed by the extensive program launched for the control of venereal disease in the United States, and by the tremendous enthusiasm with which it was received. Nearly a thousand public health officers and others interested in the problem assembled there from all parts of the country. Such a meeting is significant to all of us, not only because it offers opportunities for the interchange of factual information, but also because it serves as a clearing house for the attitudes of public health agencies, private practitioners, and lay workers such as the social service groups. One could hardly come away from such a meeting without a conviction that there is important work for all, that there is no essential conflict in aim, and that intelligent cooperation of all groups will be to our mutual advantage.

Let us now examine the problem in the concrete. The problem, I assume we would all agree, is to eradicate syphilis. To do this, the most efficient of modern methods must be selected. Which of these methods may best be administered by public health groups and which by private practitioners we shall examine in a moment.

MAKING THE PUBLIC SYPHILIS-CONSCIOUS

On this first line of attack I shall touch only briefly. The public must be made syphilis-conscious as it has been made tuberculosis-conscious and cancer-conscious. If, as the available records indicate, over 600,000 fresh cases of syphilis are reported annually in this country, there are at least as many more which never reach a physician, and these latter, of course, constitute the greater menace. While it may with some justice be said that this is primarily a public health problem, it is one in which all practitioners of medicine must assume a share of responsibility. I would recommend hearty support of the stand taken by the American Medical Association in a recent issue of the Journal that authoritative information on the subject of syphilis be given to the general public; and it is certainly much better that it come from physicians themselves than that it be left to lay popularizers whose mixture of misinformation and pseudo-science often does more harm than good. Press and radio have been curiously backward in this field. It was only last year that Dr. Parran, then Commissioner of Health for the State of New York, was refused permission to broadcast an informative talk on syphilis, and until recently it might almost pass for a typographical oversight if the word "syphilis" was found printed in a daily newspaper. During the past winter the taboo has been lifted somewhat. One of the large metropolitan dailies ran a series of articles on syphilis, and occasional articles are appearing with increasing frequency in the

better magazines of general circulation. The campaign must be continued until all persons who would know enough to consult a physician for a lump in the breast or a productive cough associated with night sweats and loss of weight, will also suspect an innocent-looking sore on the lip or the genitals as the possible forerunner of syphilis.

Ignorance is prevalent in all classes of society. Not long ago eight fresh cases of syphilis among young people in one locality were traced to a kissing game at a party attended by a young man of good family who had a sore on his lip. The sore was a chancre. The young people might easily have been your children or your friends' children. For syphilis, much popular opinion to the contrary, is no respecter of persons.

THE CHOICE OF MEDICAL CARE

I have said that the first modern line of attack is to make the public syphilis-conscious. A man is not likely to consult his doctor for a trifling lesion which may cause him little or no inconvenience unless he has reason to think it may be the forerunner of a more serious ailment. He is still less likely to take precautions against infecting others. But let us assume for the moment that our man is sufficiently informed to consult a doctor for that suspicious sore or rash. At this point there is a tendency for the members of the old guard to become slightly hysterical. It is argued that as the Public Health Service expands its program and more clinic facilities are provided for the treatment of syphilis, patients will gravitate toward these and away from the private practitioner. I propose to show that what happens here lies very largely in the hands of the practitioners themselves. It is of course understood that indigent and border-line cases must be treated at public expense, either in clinics or privately, the physician being supplied with free drugs for non-paying cases. The well-to-do on the other hand will probably consult the specialist. In between these economic extremes lies the largest group of all, those who are able and willing to pay if they can be made to realize the importance to themselves of securing at the outset competent medical service combined with privacy and the confidential interest of their family physician. There is no doubt in my mind that any good general practitioner with a practical working knowledge of the diagnosis and treatment of syphilis can offer better service than any which a Public Health Clinic is likely to be able to supply for some time to come. It is when the middle-class patient finds his physician insufficiently informed or incompetent to diagnose and treat syphilis that he will gravitate toward the public clinic, even though he may be able to manage private fees, if not unreasonably high.

MODERN METHODS OF DIAGNOSIS

Suppose we consider a concrete example. Mr. Jones, let us say, wakes up one morning to discover a trivial-looking sore on the penis. At this stage he may not be aware of any other symptoms, except possibly a guilty conscience. He is just sufficiently informed, however, to drop in to Dr. ——'s office on his way to work. The doctor is not impressed. He applies an antiseptic ointment and tells him to come back if the sore fails to heal. Jones does come back, this time with enlarged inguinal glands in addition to the sore. He may even have a touch of sore throat, which he attributes to a cold coming on. But he indignantly denies any exposure to syphilis, providing the doctor is bold enough to inquire; and the sore is diagnosed as a chancroid. When Jones comes back for the third time, some two or three months later, he has all but forgotten the sore, which healed in a month or so as the doctor said it would. He is now bothered with a rash, it does not itch, but it is unsightly, and his wife is worried about it. The doctor pronounces it a "toxic eruption", prescribes a diet and soothing lotions, and tells him not to worry. As an afterthought, Jones may mention that he has been feeling rather shiftless of late, headaches, lack of appetite, and his hair seems to be coming out rather fast. So the doctor gives him a tonic for good measure.

So far, several golden opportunities have been lost. In the first place, contrary to the prevailing legal principle, a patient suspected of syphilis is guilty until he has been proved innocent. The proof lies first of all, in a clinical differentiation between the initial lesion of syphilis and that of chancroid and other lesions

which show a predilection for the genital region.

The syphilitic origin of the lesion is often confirmed by a darkfield examination of serum from the lesion. This is an invaluable aid to diagnosis in the first few weeks, for the blood does not as a rule give a positive reaction until several weeks after the first appearance of the lesion.

This early diagnosis is of vital importance to the patient for it has been demonstrated that the highest percentage of cures in syphilis has been obtained in patients whose treatment was begun in the seronegative primary stage, the next highest in the seropositive primary stage, that is to say, when the Wassermann has become frankly positive but before the appearance of a skin eruption, and the lowest percentage of cures when treatment is not begun until a rash has appeared.

Jones' doctor missed another golden opportunity when he ignored the patient's enlarged glands. For when serum from the chancre itself fails to show the presence of spirochetes (possibly because the patient has applied some local disinfectant), a darkfield examination of material obtained from puncture of the gland draining the site of the lesion will often disclose Spirochaeta pallida.

When Jones appeared with what his doctor was pleased to call a "toxic eruption" (or perhaps he only called it "eczema", or "pityriasis rosea") he had three kinds of evidence on which to judge his case: (1) the history of a penile sore followed first by enlarged inguinal glands and then after several months' interval by an eruption accompanied, if the case be typical, by other symptoms, such as sore throat, hoarseness, headaches, and general fatigue, loss of appetite and falling of hair; (2) the character of the syphilitic eruption, as distinguished from other skin rashes, and (3) the Wassermann reaction, which is positive in all but a minute fraction of patients with florid secondary manifestations.

The physician must also reckon with the possibility that other skin ailments may exist concomitantly with a syphilitic rash or with a positive Wassermann and yet be quite independent of syphilis. In this matter of the differentiation of the syphilitic eruption from other skin conditions the physician has only himself to depend upon. In the matter of darkfield examinations for spirochetes and in the Wassermann test, however, he has the right to assistance from some centralized agency, such as the laboratory of the local hospital or of the nearest Public Health Service. It is too much to expect of the general practitioner that he become an expert in the darkfield and Wassermann procedures, when a laboratory equipped to perform such tests routinely can do them much more satisfactorily and at less cost per patient. New York State has developed an excellent laboratory system, comprising over 70 laboratories approved by the State Department of Health for serologic and other examinations of specimens for the diagnosis of syphilis. These laboratories are all maintained wholly or in part by public funds and render service without charge. Other states provide similar service in varying degrees, and it is to be hoped that with the aid of funds made available by the Social Security Act these services will be expanded. Darkfield examinations for private patients are provided by 21 states, according to figures cited at the recent conference in Washington. Mailing-kits are available for sending specimens for darkfield examination, and these can be used even by physicians in outlying districts, since it has been shown that when certain simple precautions are observed, spirochetes remain motile in such containers for as long as five days. (See Am. J. Pub. Health 24:452 and 629, May and June 1934).

THE WASSERMANN REACTION

In regard to interpreting serologic tests, the problem of the diagnostic Wassermann is somewhat different from that of the test made from time to time as a check on the results of treatment. Except in a very few other diseases, notably yaws, which can usually be ruled out by other means, a strongly positive Wassermann report in conjunction with the characteristic clinical symptoms and a history of recent exposure, means syphilis. If the Wassermann reaction is only weakly positive, however, or if despite strongly positive Wassermann either history or clinical symptoms be lacking or contradictory, then a diagnosis of syphilis is premature. Blood samples should be sent to at

least two different laboratories, and one or more of the flocculation tests, preferably the Kahn or Kline, should be made to supplement the complement-fixation test. In very doubtful cases, several sets of tests, taken at intervals of a few days to a few weeks, may be indicated, to allow for some temporary condition of the patient's blood, or for the occasional variation in laboratory materials and procedure. It is unfair to the patient to condemn him to the nervous and financial strain of a lengthy course of treatment until the diagnosis has been made with the highest degree of certainty that modern methods can provide.

MODERN METHODS OF TREATMENT

(*A*). *Choice of Drug*: Let us ssume now that the diagnosis of early syphilis has been definitely established and the physician is ready to begin treatment. The older man, for reasons already touched upon, will be tempted to give mercury, often mercury by mouth, together with potassium iodide and let it go at that. Others, perhaps impressed with the flood of literature on bismuth during the 1920's, may "go modern" to the extent of trying one of the innumerable bismuth preparations on the market, beguiled by the comparative harmlessness of bismuth as compared with the arsenicals, and the large doses which he may administer with impunity. Those physicians who pride themselves on having passed the horse-and-buggy stage of therapy but who are still mindful of the train of toxic after-effects which the early arsphenamine preparations left in their wake, will compromise on neoarsphenamine. The majority of so-called "modern" practitioners in this country today are using neoarsphenamine in the treatment of early syphilis.

I think there is already at hand sufficient evidence to indicate that before long neoarsphenamine will be as outmoded as mercury for attacking a fresh syphilitic infection. The one great advantage which has been claimed for neoarsphenamine is that it is less toxic than the original arsphenamine preparation, and therefore larger doses can be given with comparative safety.

In the first place, even the most ardent proponents of neoarsphenamine admit that its decreased toxicity has been achieved at the price of decreased therapeutic efficacy. It contains only about two-thirds the amount of metallic arsenic which old arsphenamine contains, and clinical trials have amply demonstrated the latter drug to be the prompter in its action. In 1931, I reported the comparative achievements of old arsphenamine, neoarsphenamine and silver arsphenamine over a period of several years, in a series of over 400 patients with early syphilis.* The results were overwhelmingly in favor of old arsphenamine, both as to effectiveness in healing open lesions, in reducing a positive Wassermann reaction, and in the relative scarcity of toxic effects from the drug. Reports of others, notably the Cooperative Clinic Group and the Public Health Service, have since confirmed these findings in their essentials.

Why is it then, that the average practitioner today, if he uses an arsphenamine at all, uses the less potent and, in all but ineffective doses, more toxic neoarsphenamine? The answer is not far to seek. It is based, I suspect, upon the thoroughly respectable fallacy that a straight line is the shortest distance betwen two points. With due apologies to Euclid, I propose to show that this is not necessarily true. In the old days when the acid arsphenamine solution had to be neutralized by the physician with sodium hydroxide drop by drop, and the disasters which followed upon imperfect alkalinization or, in many instances, failure to alkalinize at all, were constantly before him, it was not to be wondered at that he welcomed the new drug, which was soluble in water and did not have to be neutralized. There was the additional factor that the old arsphenamine required much higher dilutions and this in turn called for a gravity apparatus, while the neoarsphenamine could be given in lower dilutions and injected by syringe. The patient got less for his money, but the doctor's arm ached less and his nerves improved noticeably.

It was only after analyzing results from my own cases and those treated in the Vanderbilt Clinic that I became convinced that the shortest route to the patient's vein was not neces-

*Cannon, A. B. and Karelitz, M. B.: The comparative value of the arsphenamines in the treatment of early syphilis, J. A. M. A., 97:1523, 1931.

sarily the quickest way to a cure. Now for some years past we had been using old arsphenamine by syringe successfully in our Children's Clinic, in the treatment of congenital syphilis. Its success was due in large part to the administration of the drug by a specially trained nurse, who became adept in the treatment of young children. I was anxious to find some improved method by which this drug might be safely administered by anyone who had learned to give an intravenous injection of any solution.

Consultation with representatives from one of our leading drug manufacturers led eventually to the marketing of old arsphenamine in ampules of different sizes, each accompanied by an ampule of sodium hydroxide solution to the exact strength required to neutralize the corresponding dose of the arsphenamine*. For adults, the neutralized solution may either be diluted to 25 or 30 c.c. per decigram of the drug and given by gravity, several doses being prepared simultaneously, if needed, or it may be diluted to only 10 c.c. per decigram and injected slowly by syringe, where patients are few and scattered. Children tolerate even lower dilutions by syringe (down to 5 c.c. per decigram); by gravity, the same dilutions are used for children as for adults.

We have been using old arsphenamine to the exclusion of neoarsphenamine in the Department of Dermatology of the Vanderbilt Clinic for the past six years. It has been administered by syringe to adults for two years of this period, and to children during the entire time by this method. Members of my staff have not noticed any more reactions under this method than under the gravity method, and the practically fool-proof make-up of the arsphenamine and sodium hydroxide ampules renders it all but impossible to give an imperfectly alkalinized solution, thus removing what has undoubtedly been the greatest single hazard attached to the administration of old arsphenamine.

So far I have advocated only old arsphenamine as the drug to use in making the initial attack on a freshly acquired syphilis. Occasionally, silver arsphenamine may be used to advantage. Out of any large group, there will always be a few patients who cannot tolerate old arsphenamine in ordinary doses. In such cases we usually try first reducing the dose, and giving a solution of adrenalin chloride (5 minims) 15 minutes before the arsphenamine injection. If the patient is able to tolerate the slightly smaller doses, even if he must take them at shorter intervals, we consider it best for him to continue with old arsphenamine. If however he continues to manifest difficulty in taking old arsphenamine, we fall back on silver arsphenamine, which, with an arsenic content about equal to that of neoarsphenamine, appears to be slightly less toxic and considerably more efficacious than neoarsphenamine, according to our experience. We also try silver arsphenamine in the occasional cases which prove serologically resistant to old arsphenamine after several courses of the latter have been completed without any lapses from treatment. We do not give neoarsphenamine, even as a last resort, but prefer to continue treatment on alternate courses of bismuth and mercury in the rare instances in which a patient has proved refractory to both old arsphenamine and silver arsphenamine.

Thus far, I have devoted the major part of my discussion of anti-syphilitic therapy to the arsphenamines. A few words should be said concerning the choice of mercury and bismuth preparations, for the market is flooded with compounds of both metals, each new one claiming advantages more extravagant than the last. My advice to the general practitioner would be to stick to the relatively few products which have already received a fair trial in the larger clinics, and watch for reports such as appear in the Journal of the American Medical Association from time to time on newer products. Last year after analyzing our results at the Vanderbilt Clinic with various preparations of mercury and bismuth used over a number of years,* we came to the conclusion that mercury salicylate, in doses of one-half to one grain gave the most generally satisfactory results of mercury preparations tried; while of the bis-

*Ampules supplied by the Dermatological Research Laboratories of Philadelphia.

*Cannon, A. B., and Robertson, J.: The choice of bismuth or mercury with arsphenamine in the treatment of early syphilis. J. A. M. A., 106:2133, 1936.

muth preparations, the oil-soluble bismocymol (N. N. R.) and the oil-suspended sodium potassium bismuth tartrate, each containing 50 mg. of metallic bismuth per c.c., gave the best all-round account of themselves. Details of dosage may be found in the article cited.

(*B*). *Plan of Treatment*: As soon as the physician has made sure of his diagnosis and selected his drug, he should begin treatment immediately. By no means should he ever wait for the appearance of a secondary rash before beginning treatment, if the clinical diagnosis of chancre has been confirmed either by a positive darkfield or a positive Wassermann reaction.

Treatment, however, even with the best drug and the most perfect technic, will be of little or no avail unless pursued systematically, according to a well-ordered plan. Perhaps the most difficult of all problems, and the one in which exist today the greatest differences of opinion among specialists, is the problem of how long to treat, and how often; whether to give arsphenamine alone, alternating with one of the heavy metals, or arsphenamine and a heavy metal concurrently, with rest periods between courses; whether to treat for six months, one year, or five years, and when, if ever, the syphilitic patient is to be pronounced "cured".

The standard treatment plan to which we attempt to hold every clinic patient admitted with early syphilis, calls for a total of three courses of ten injections each, of old arsphenamine, and three courses of fifteen injections each of a mercury or bismuth preparation throughout the first year. During the first month the arsphenamine and mercury or bismuth courses run concurrently; thereafter, they alternate or overlap, so that the patient is continuously under treatment with one or the other, or both. The first six injections of arsphenamine may be given twice weekly and the following four at weekly intervals, or they may be given as often as every other day for six injections and the following four at three, four, five and six day intervals to complete the first course. The second and subsequent courses of arsphenamine are given twice weekly for the first six injections and weekly for the following four. The interval between the first and second courses of arsphenamine should be four weeks, between subsequent courses six weeks.

The first course of fifteen injections of mercury or bismuth is given at four or five day intervals for the first six injections and weekly for the following injections of the course. Both intravenous and intramuscular injections may be given at the same visit, for the convenience of the patient, except that during the first two weeks the patient receives from four to six injections of arsphenamine and only three of mercury of bismuth. Between arsphenamine courses, and while the patient is receiving only mercury or bismuth, he is also given potassium iodide by mouth.

If at the end of the first year the blood Wassermann and spinal fluid reactions are negative and there has been neither serologic nor clinical relapse, the patient is permitted to stop treatment and remain under observation, returning at intervals of three months for blood tests during the second year, and at longer intervals thereafter.

"Cure." The Wassermann Reaction as a Check on the Results of Treatment.—The criteria of a patient's progress under antisyphilitic treatment are to be found chiefly in the clearing up of the external manifestations, the reduction of a positive blood Wassermann to negative, and the improvement in the patient's general well-being. From a public health standpoint, the first is undoubtedly the most important. A chancre, if uncomplicated by some superimposed infection, will ordinarily heal with a very few injections of old arsphenamine, in a young and otherwise healthy subject. Mucous patches and condylomata also disappear with astonishing rapidity, while the average early generalized eruption will clear sometimes within a few days after a single injection of arsphenamine, and usually after two injections. The late secondary eruption is generally more resistant.

The disappearance of the outward signs of syphilis, however desirable in itself, is no indication that the patient is cured, as many found to their sorrow in the early days of the arsphenamine era. The Wassermann reaction is the physician's most dependable guide to prog-

ress. We recommend that a Wassermann be taken once a week, before the injection, but at the very least at the beginning and end of every course of treatment. This again does not mean that a single negative Wassermann indicates the dissolution of the last remaining spirochete in the patient's system. On the other hand, a persistently positive Wassermann, or one which fluctuates between positive and negative serves as a pretty definite indication for continued treatment. As has already been explained, in connection with the treatment plan, we advocate a minimum of eleven months' treatment according to plan, regardless of negative or positive serology in the meantime. If, however, the Wassermann reaction has become negative by the end of the first course of arsphenamine, as is usually the case, and if it then remains consistently negative, when taken at not less than monthly (preferably weekly) intervals, up to the end of the first eleven or twelve months, there is strong evidence that the patient has his infection under permanent control, and that he is safe in discontinuing treatment at this point. This evidence should be corroborated by a thorough physical examination, roentgen rays of the heart and electrocardiogram. It should be further supported by a least one test of the spinal fluid; one at the end of the first arsphenamine course and another at the end of the first year or eleven months is better still.

If, on the other hand, the serum reaction has not responded favorably to regular and continuous treatment as outlined, if there has been any recurrence of specific symptoms, or if the patient has been irregular in attendance or unable to tolerate average doses of the preferred drugs, then the treatment plan must be modified to suit the individual case. In so far as my own experience has shown, the physician will be able to achieve what is by practical standards a "cure" in close to 100 per cent of patients who can be made to follow the procedure outlined from the early weeks of their infection.

The Problem of Contacts and the Follow-up of Irregular Patients.—Perhaps this topic does not strictly fall within the purview of my subject, but I shall include brief mention of it, for the very obvious reason that not even an ideal treatment scheme, propelled by the most active drugs, navigated by the most far-sighted doctor, and armored by all the safeguards of modern technic, will bring the patient to safety if he fails to embark upon it, if he embarks only to disembark in the middle of the course, or if he escapes himself and leaves behind him others infected with his germs. I believe that neither regimentation nor laissez-faire will solve these problems. It is farily obvious that in syphilis more than in any other communicable disease, the business of keeping the patient under treatment and of reaching his contacts is a highly individual one. The physician by tact and considerate behavior will probably be able to achieve results alone in the majority of instances. Where patients fail to give reasonable cooperation, more drastic measures will have to be followed. In our clinic practice, physicians keep in close touch with an active and efficient Social Service department, which has been highly successful in keeping patients under treatment and in inducing contacts and members of the patient's family to come in for examination and treatment. Public Health officers in many localities have developed very effective measures for bringing in the more recalcitrant patients who can not be reached by other methods.

If I have confined my remarks to the subject of early syphilis, it is not from any desire to minimize the importance of diagnosis and treatment of the disease in its later stages. It is rather that the early period, since it constitutes the acutely infectious stage, is of the most immediate importance from the standpoint of public welfare, and furthermore, because it offers the most tangible rewards in its response to well-ordered treatment. It is in the early period that a standard treatment scheme can be employed to the best advantage. In the tertiary stage and after the nervous and cardiovascular systems have become involved, treatment must be much more highly individualized according to the structures damaged and the extent of their damage. Treatment is for the most part palliative, and is directed not toward sterilization of the organism but toward arresting the active progress of the infection and bringing about a truce between parasite and host.

SUMMARY

I might recapitulate my concepts of modern trends in the diagnosis and treatment of early syphilis somewhat after this fashion:

1. The public must be made syphilis-conscious, as it has been made tuberculosis-conscious and cancer-conscious.

2. Both public and private agencies must cooperate to provide medical care for all persons infected with syphilis, and the patient should have as much free choice in selecting medical care as is consistent with the public safety.

3. The general practitioner can and should be competent to diagnose early syphilis, but he should have the aid of laboratory facilities supported by Federal, state and local governments.

4. The general practitioner can and should give treatment according to a logical plan and with the best drugs available in the light of current knowledge.

5. The best single drug is old arsphenamine, and it can be administered by a safe and practical method available to the general practitioner, as described.

6. A "cure" for practical purposes, is possible of attainment if the standard treatment plan is adopted in the early stages of infection and adhered to for at least one year. A "cure" should be verified by the procedures described.

7. The problem of keeping patients under treatment and of reaching contacts requires the cooperation of both public and private agencies, including visiting nurses and social service groups.

RADIATION THERAPY IN BENIGN UTERINE HEMORRHAGE*

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One of the greatest triumphs in radiation therapy is the spectacular result secured in benign uterine hemorrhage. This method of treatment has been refined and definitely proved during the past twenty years. Today it is recognized as the method of choice in the treatment of menorrhagia and metrorrhagia, when other therapeutic measures have failed, which present no gross lesions and in certain small fibromyomas of the uterus. In each of these the endometrium shows the typical hyperplasia picture.

It has been my observation that only a few surgeons are acquainted with the true value of radiation therapy in the management of benign uterine bleeding. In gynecologic circles it is generally conceded that hysterectomy has no place in the treatment of functional bleeding, except in rare instances. Radiation therapy in these cases is based on the rational procedure of stopping the bleeding hormone—probably excess of estrin. Curettage, at best, affords only a temporary relief because the cause has not been removed. Just as soon as the endometrium has regenerated there will be bleeding again. The administration of antuitrin S and other hormonal products usually results in failure.

CLASSIFICATION OF BENIGN UTERINE BLEEDING

Benign uterine bleeding is best divided into three groups according to the age of the patient: (1) Bleeding of adolescence and of young women; (2) bleeding of middle life and of the menopause; and (3) bleeding occurring after the menopause. The first and second groups, comprising bleeding before or during the menopause, make up by far the greatest number of patients and in this group roentgen ray treatment is the method of choice. In women who have passed the menopause radium may well be the treatment of choice.

Roentgen rays act directly on the ovaries, affecting the endometrium but little, while radium acts directly on the endometrium, causing a complete and permanent destruction of the same but having very little effect on the ovary. A correct diagnosis is the essence of successful therapy and in uterine bleeding it is imperative that a correct diagnosis be obtained. Occasionally it is permissible, after a careful history and other studies of the case, to administer treatment without a diagnostic curettage. When one recalls that two per cent of excessive uterine bleeding before the menopause is due to malignancy and that twelve per cent during or upon approaching the menopause and that sixty per cent of bleeding women who

*Read before the Louisiana State Medical Society, Monroe, April 27, 1937.

have passed the menopause have a corpus cancer, there should be no treatment instituted before carcinoma of corpus uteri has been ruled out.

ROENTGEN RAY DOSAGE

In the younger group of women, who are not approaching the menopause, a subcastration dose of high voltage roentgen rays to the pelvis, in correct dosage, will in a high percentage of cases produce a temporary cessation of menstruation for a period of approximately twelve months. When menstruation is again resumed there will be normal function. It is not necessary and, in fact, in the younger group it is very difficult to produce a permanent amenorrhea. A dosage of 275 r delivered at the ovary is usually regarded as a permanent castration dose. The younger the patient the higher the dosage necessary. In the treatment of women at or near the menopause it is customary to administer a dosage of 400 r/o, 20 cm. fields, to anterior and posterior pelvis on alternate days, each area one time. Patients who have bled down and have a low red cell count should first receive a blood transfusion and then be treated cautiously, administering doses over four or five days. There are no skin changes noticeable from such treatment, the dosage being less than an erythema. Patients who are in the first half of the menstrual cycle usually will not menstuate again following proper dosage. Patients who are in the second half of the cycle will menstruate once and a small percentage, twice. Occasionally following the treatment there will be an increase in the amount of the flow, but not to an alarming amount nor does it last more than a day or so.

Bleeding in the third group of women, that is, those who have passed the menopause, demands a careful curettage for study and this group is best treated by the use of radium, which is applied at the time of the curettage and 1,800 to 2,000 mg. hrs. applied. In the event that the tissue recovered reveals malignancy the radium should be left in to deliver 6,000 mg. hrs. or more.

Fibromyomas of the uterus not larger than three months' pregnancy, of the interstitial and intramural type, may be treated with radium or roentgen rays with curative results. When the tumors are larger, roentgen rays may be used as palliation, or to arrest hemorrhage and permit the patient to regain sufficient health for the performance of a hysterectomy. Pedunculated and subserous fibromyomas should not be irradiated because of the danger of necrosis and sloughing.

There is much misunderstanding regarding the effect of radiation therapy on the sexual life of the patient. Careful study of many cases and reports from the literature confirm the fact that as a general rule there is no loss of libido, and that in many cases there is much improvement in the sexual life of the woman. Menopausal symptoms, as a rule, do not occur in a normal, well stabilized woman; where there is already nervous instability the menopausal symptoms may appear quite prominent, but are satisfactorily controlled with weekly doses of theelin in oil, 2,000 units, for the first month and then every two weeks thereafter until free of symptoms.

An examination of my records shows that I have treated 210 cases of benign uterine hemorrhage with satisfactory results and the cessation of bleeding in 100 per cent of the cases. In this series of cases there was no mortality nor morbidity.

SUMMARY

Radiation therapy is the acknowledged method of choice in the treatment of functional uterine bleeding and certain types of fibromycmas of the uterus. Hysterectomy today has no place in the treatment of functional bleeding, except in rare instances. Hormonal therapy is generally disappointing. A plea is made for the conservation of woman's most precious organ.

DISCUSSION

Dr. A. G. McHenry (Monroe): Irradiation is certainly of great value in the treatment of functional uterine hemorrhage. It is most valuable possibly in the age group from thirty-six years on. Hormones are very disappointing and roentgen ray given, as Dr. Edwards suggested, on alternate days, does not give the patient a very long stay and is certainly of advantage. Frequently we are unable to control bleeding in any other way.

If the patient is above forty years of age, she certainly should have curettage to rule out the possibility of malignancy. The patients I have

treated in this manner have showed great improvement from irradiation.

Dr. Paul W. Winder (Shreveport): In discussing the treatment of functional uterine bleeding we must take into consideration the type of functional disturbance and the age of the patient. I agree with Dr. Edwards that radical surgery has little place in the treatment of this functional disturbance, but I cannot agree that radiation therapy is the treatment of choice in all groups. I rather think we have two choices of treatment; namely, a conservative plan consisting of curettage and glandular therapy, and a radical plan consisting of radiation therapy. The choice of the type of treatment depends upon the type of functional disturbance and the age of the patient.

It is known that in the group consisting of functional uterine bleeding there are three types of endometrial pictures: First, and most common, is the hyperplastic type of endometrium, which makes up approximately 80 per cent of this group. Without going into the endocrinology of this disturbance it seems now to be clearly established that we are here dealing with a failure of ovulation and a steadily increasing amount of estrin or theelin, which increases the hyperplasia. The second possible endometrial picture is that of an abnormal secretory type, termed intermittent shedding of the endometrium by Traut and Kuder of Cornell University. The mechanism of this disturbance is only theoretical but was thought by Traut and Kuder to be a prolonged and weak corpus luteum effect. The third possible endometrial picture is a condition described as a disease entity by Traut and Kuder and termed irregular ripening of the endometrium and histologically represents a mixture of hyperplastic phase and corpus luteum phase. This condition, to me, is merely ovulatory bleeding.

The functional bleeding due to intermittent shedding and irregular ripening of the endometrium, according to the experience of Traut and Kuder, is curable by curettage alone, hence more radical treatment is unnecessary. The larger group due to hyperplasia of the endometrium is much more complex to treat. Age here is an important factor in governing treatment. In the medium age group, say 35 to 40, and in the menopausal age group, say 40 to 50, I will again agree that radiation therapy is the treatment of choice. However, in the young age group, say from 13 to 35 years of age, I feel that glandular therapy should be given a thorough and well supervised try, and in a good per cent of these cases the results will be gratifying. In those cases that do not respond to the glandular therapy, radiation therapy will, though a more radical procedure at this age, be the treatment of choice.

Dr. Jean Paul Pratt (Detroit, Mich.): I am a little embarrassed to discuss this paper because on general principles I am not very much in sympathy with the free use of radiation for benign and functional lesions. The last speaker has really struck the keynote in being very careful about the diagnosis.

Briefly, I may say it is seldom found in younger women that it is necessary to use either radiation or operation without curettage for diagnosis. There are many things that may be done, beginning with general physical examination. A great many of these disturbances of bleeding are due to habits of life, habits of eating, over-weight, underweight, lack of exercise or frequently too much exercise. In the younger group, difficulty in their school life is very often the cause of bleeding. The practical way is to spend most of the time making the diagnosis and then very little need will remain for either operation or radiation. In very selected cases it may be used, but it should be carefully controlled.

The use of calcium may be mentioned. Just why calcium is lacking, or why it is insufficient, is difficult to say. I have been repeatedly surprised to find that small amounts of calcium in women who are bleeding, whether from fibroids or hyperplasia, correct the condition. I often wonder, whether they stop because of calcium, or whether they were ready to stop anyhow.

That leads me to speak of another assistance to diagnosis, namely, keeping careful records. I have made a chart for women to keep at home. It is marked off in months and days. Patients are requested to make graphic representation on this chart indicating the character of menstruation, how frequent, the amount of flow. When completed, the chart is often very enlightening; it is so different from the casual statements made about the flow. The amount of flow which is mentioned casually is apt to be as misleading as the amount of leukorrhea mentioned in one of the papers at the meeting yesterday. One woman says she has leukorrhea; we look and find nothing. Another says she has none but it is pouring out. We find the same situation with bleeding; the patient's interpretation is very inaccurate.

I think we should spend a great deal of time in diagnosis and remove from our list a number of patients who need no radical treatment of any kind.

Dr. Harold G. F. Edwards (In conclusion): I do not know that I have anything to add to the discussion except to thank Dr. McHenry for his remarks, and also to say that there is no disagreement between Dr. Winder and me as to how cases should be handled; I qualified my opening re-

marks "when other therapeutic methods have failed".

I want to thank Dr. Pratt for his discussion and also for bringing out one point which I have stressed and that is accurate diagnosis. That is the one essential in uterine bleeding. I recognize that there are functional conditions which are amenable to treatment other than radiation. My plea is based on the fact that I have seen so many small uteri removed from women in the Charity Hospital at Shreveport, who were functional bleeders. Since Dr. Winder and I have worked out this plan very few hysterectomies are now performed. We are now trying to conserve rather than take them out.

ROENTGEN RAYS AND THEIR USE IN THE TREATMENT OF SKIN DISEASES*

M. T. VAN STUDDIFORD, M. D.
NEW ORLEANS

Daily lay people ask this question, "Of what use are roentgen rays in the treatment of skin affections?", and in the same breath they answer their own question by saying, "Of course, I know they are dangerous, causing burns, which leave scars." If all erythematous reactions of roentgen rays are to be spoken of as burns and if all the sequelae of diseases treated on or through the skin are to be a jury trial and conviction of roentgen ray treatments, then it is high time that the medical profession look into this agent of treatment, condemn it, discard it and look for some other form of therapy for these conditions so often treated by roentgen rays alone or used in conjunction with other forms of therapy. However, if the medical profession agrees that the roentgen ray is a very valuable agent of therapy, then they should help defend its use. Furthermore, once that part of the profession, unfamiliar with the use of modern equipment, technic and control of dosage, have familiarized themselves with the possible advantages of this form of therapy, then they should join in the education of the lay public to help break down the too prevalent idea of the dangers attached to its use in proper hands. They should also help kill the idea that it is used only in malignant conditions as a last resort.

ACNE

This educational program should then start by reviewing the more common skin affections treated by roentgen rays with favorable results. Acne, a disease resulting from over activity of the sebaceous glands of the face, neck, shoulders, chest and occasionally the entire trunk, usually makes its appearance during adolescence and often times leaves a scarred, pitted, self-conscious individual with an inferiority complex of varying degree. Even with the present knowledge of endocrinology, roentgen rays still offer the best therapeutic agent.

McKee has shown conclusively, by his experiment treating one side of the face affected with acne by the accepted routine manner and protecting the opposite side from the roentgen rays during these treatments, that scarring is less frequent and less marked on the roentgen ray treated surfaces and that cures were accomplished in a larger per cent of patients and in a shorter period of time. He proves by this series of patients that roentgen rays lessen scarring rather than increasing or causing scarring in the treatment and cure of acne. I should like to digress just a bit here to see why scarring occurs in acne patients.

We are confronted with abscesses of the sebaceous glands; if these abscesses are large, the resulting scars will be large and, if these abscesses are small or shallow, the scars will be small and shallow. No one conversant with the pathology of acne would expect any form of therapy to produce new tissue where abscess formation has caused destruction of tissue with scar tissue formation. Tubercular affections of the skin respond favorably to treatment with roentgen rays, or its similar agent, radium. These are the agents of choice in tubercular affections of the neck, axilla, groin, anal and scrotal regions.

Cutaneous actinomycosis and blastomycosis react more favorably to large or cauterizing doses of irradiation than to any other therapy. It is believed by most investigators that roentgen rays cause a favorable influence upon folliculitis, carbuncles, and inflamed sinuses. Pain is lessened and circulation is accelerated after

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*Read before the Louisiana State Medical Society, Monroe, April 28, 1937.

as little radiation as is required to make a roentgen ray picture, in many cases. Pruritus about muco-cutaneous junctions, such as pruritus ani or pruritus vulvae, is often relieved by one-half or one-quarter skin unit of roentgen ray treatment.

NEURODERMATITIS

Neurodermatitis with its resultant lichenification located on the neck, arm pits or popliteal spaces, is affected favorably by roentgen ray treatments. The itching of lichen planus and the regression of the skin lesion usually follow a few roentgen ray treatments. The pain is lessened and healing of herpes zoster is often accomplished by the application of roentgen rays over the lesions and along the affected nerves.

MISCELLANEOUS CONDITIONS

Verrucae or warts under the finger nails, on the palms and soles usually respond to irradiation and leave no apparent scarring. It is often rather disconcerting to have a patient present a long or circular scar with a recurrent verruca either on an edge or surrounding an excision scar.

Psoriasis more quickly and dramatically responds to roentgen ray treatments than any other form of therapy. The results are only for a short or longer period of time and care should be maintained not to repeat treatments too frequently or at too close intervals.

Tinea tonsurans of children can, by an epilating dose of roentgen rays, be cured of the infection when all other methods have failed. Tinea barbae or barber's itch in patients where other therapy has failed may be cured by epilation of the beard. Onychomycosis, or tinea of the nails, does not often respond to roentgen ray therapy, but the inflammation of the surrounding nail bed may be lessened. Roentgen ray therapy of tinea infections of the fingers and groin is often the agency with which to combat the pruritus but the fungi are not killed by the rays.

Roentgen ray treatment of foot and toe infections is a very dangerous procedure where very much of the surface is affected. The vesicles and itching of pompholyx or dysidrosis are benefited by roentgen ray treatments.

Large keloidal scars become pliable and flattened by irradiation, as do angioma or birthmarks.

New growths such as the lymphoblastomycosis group, of Hodgkin's disease, leukemia cutis, lymphogranulomatosis cutis, and mycosis fungoides are affected by irradiation and it is usually the most useful treatment.

Epithelioma of the basal cell type, kraurosis vulvae, Paget's disease of the nipple, sarcoid, epithelioma of the multiple benign type, and epithelioma of prickle cell type, respond well to irradiation and the trend in clinics treating malignancies is to produce roentgen rays in larger amounts, of higher voltage and more selective filtration.

SUMMARY AND CONCLUSION

The object of therapeutic applications of roentgen rays or radium is to cure or relieve objective and subjective symptoms. Roentgen ray gives a high per cent of cures in patients suffering with acne, reduces scarring and shortens the period of involvement of the skin. Scars are a result of necrosis of tissue, not a result of properly applied irradiation. Cutaneous and superficial tuberculosis, actinomycosis and blastomycosis respond to irradiation, as do folliculitis, carbuncles and inflamed sinuses. Pruritus, itching surfaces and resultant neurodermatosis are often relieved. Verrucae, or warts, are cured, psoriasis relieved, tinea eradicated, keloids and scars improved and different kinds and types of malignancies often times cured or relieved. All the processes of treatment, reactions to treatments, and results are rather definitely known but here we must lend a bit of warning. Because one owns roentgen ray equipment, is he justified in treating any condition he is unable to diagnose and properly prognosticate? Is the physician who has not had experience in the roentgen ray treatment of disease justified in sending his patient to one only technically versed in applying prescribed dosages? Lately, eye specialists have seen increasing numbers of cataracts due to mercury vapor lamp treatments. Dermatologists are seeing increased numbers of roentgen ray burns and their sequelae. The only conclusion to be drawn is—either treatments by the untrained or careless should be avoided, or let all spend considerable time in court defending malpractice suits.

DISCUSSION

Dr. J. W. Tedder (New Orleans): The most valuable single therapeutic agent in the treatment of skin diseases is probably the roentgen ray machine. This fact alone accounts for its abuse. The ownership of a roentgen ray apparatus does not justify its indiscriminate application. A knowledge of skin diseases and their pathology is essential to its proper use and successful results.

Dr. Van Studdiford has enumerated a few of the skin maladies that are favorably influenced by the proper use of the roentgen rays. There are just as many, or more skin diseases that are aggravated or unfavorably influenced by their use. One must recognize the limitations of the roentgen rays as a therapeutic agent and realize the danger of overtreatment, as well as the danger of treating a condition that should not have roentgen rays. Treatment with roentgen rays should be given only after diagnosis has been made by one particularly trained to recognize the indication for and the contraindications to their use. One must have a definite knowledge as to when sufficient treatment has been given and positively refuse to give more. Definite and accurate calibrations of the apparatus used should be made frequently and minute records kept as to dosage administered.

Dr. M. T. Van Studdiford (In closing): I have nothing to add except to say that the reason this paper was presented in this form is because within the last year I have seen so many unfavorable roentgen ray reactions in my practice which were administered by those skilled in taking roentgen ray pictures but lacking experience in treating diseases with roentgen rays.

ACUTE PANCREATITIS*

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CHICAGO, ILL.

The various types of acute pancreatitis can be divided into two groups, namely, acute pancreatic necrosis (hemorrhagic) and acute interstitial pancreatitis. The latter group is much more common; most of the remarks in this discussion will be limited to this group.

From the pathologic standpoint there is considerable difference in the lesions encountered in the pancreas, in so far as in acute pancreatic necrosis the entire pancreas may be necrotic, markedly swollen and the seat of diffuse hemorrhage. On the contrary the pancreas of the patient with acute interstitial pancreatitis may show very little except an enlarged indurated gland accompanied by edema and mild evidence of acute inflammation. Each type of pancreatitis varies a great deal in severity. The variation is so marked that it is frequently difficult to determine which type of lesion is present. On some occasions, as is noted on two of the patients I have described, there may be local necrosis of the pancreas with other changes consistent with acute interstitial pancreatitis in the remainder of the organ. This suggests that even though the extreme grades of the two conditions are remarkably different pathologically, the primary etiologic factor may be the same in each instance. It does appear, however, that there may be several contributory factors in the development of acute pancreatitis.

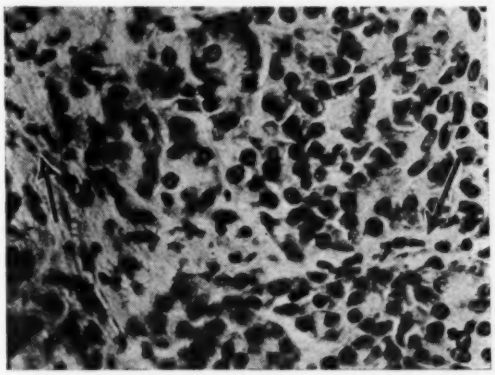

Fig. 1. Biopsy of a pancreas removed 12 to 14 days after onset of acute symptoms. Fat necrosis was still noted at operation but the photomicrograph reveals a gland which has practically regained its normal structure save for the infiltration of a few lymphocytes as indicated by the arrows.

ETIOLOGY

The first important fact presented from the etiologic standpoint was that reported by Opie[1] who noted the development of acute pancreati-

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tis in a patient with a stone lodged at the sphincter of Oddi with the establishment of a common channel between the common bile duct and the pancreatic duct. This report has led to the supposition of many men that reflux of bile in the pancreatic duct is an important factor in the production of acute pancreatitis. There is no agreement, however, regarding this point. Several years ago Cameron and Noble[2] made the important observation on fresh cadavers that if a small gall stone were inserted in the common duct and lodged in the ampulla of Vater, fluid could be forced from the common duct into the pancreatic duct with a pressure no greater than 100 mm. water. They noted that this reflux occurred in 66 of 100 fresh human cadavers. Wangensteen[3] and associates likewise made an important contribution when they noted that in cats acute pancreatic necrosis was produced in 15 of 31 instances when the sphincter of Oddi was occluded by a suture, and the animal given a fat meal. This implies that contractility of the gallbladder or sudden change of pressure might be capable of producing a reflux of bile into the pancreatic duct. On the other hand, Rich[4] has expressed the opinion that reflux of bile is not an important factor in the production of acute pancreatitis, and favors the theory that obstruction in the pancreatic ducts is produced by metaplasia of epithelial cells acting as mechanical obstruction with the infiltration of pancreatic secretion in the parenchyma of the gland, and activation of trypsin. At any rate, in most instances the damage is primarily of chemical origin and ordinarily not associated with infection except in the later stages of the disease.

CLINICAL MANIFESTATIONS

As previously mentioned there is considerable variation in the severity of the two types of disease. Obviously the manifestations of acute pancreatic necrosis will be much more fulminating than those of acute interstitial pancreatitis. The symptoms of acute pancreatic necrosis are usually ushered in rapidly (frequently following a full meal) and consist of severe pain in the epigastrium, nausea and vomiting. Examination reveals an acutely ill patient complaining bitterly of pain and revealing evidences of toxicity. Pronounced evidence of shock, including tachycardia, thready pulse, low blood pressure, cold, clammy sweat and even cyanosis may be present. By no means, however, are these manifestations of shock always present in acute pancreatic necrosis. The temperature is usually normal or even subnormal

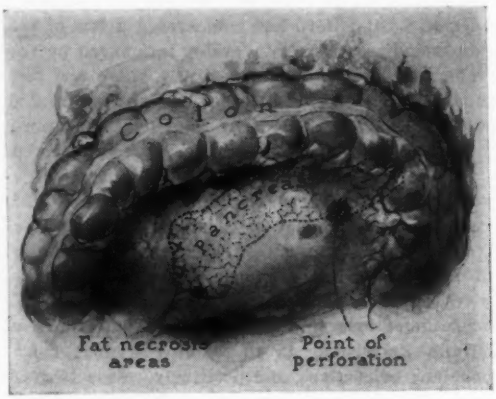

Fig. 2. Diagrammatic sketch made of operative findings in a patient 14 days after the acute onset of symptoms of pancreatitis, and three or four days after all manifestations had subsided. Local necrosis of the pancreas had penetrated through the mesocolon. Numerous areas of fat necrosis were noted, particularly on the peritoneum near the head of the pancreas. The patient had stones in the gallbladder and common duct. Cholecystectomy and choledochostomy were performed. Convalescence was slow but uneventful.

in the first few hours after onset. Usually the manifestations of acute pancreatic necrosis resemble those of a severe grade of acute interstitial pancreatitis, as described below.

One of the most pronounced symptoms of acute interstitial pancreatitis is pain in the upper abdomen. On account of the frequent accompaniment of gallbladder disease the location of the pain complained of may be variable, and in fact extend over the entire upper abdomen. It is a significant feature, however, that the pain in acute pancreatitis is located in the epigastrium and extends to the left upper abdomen in an area corresponding somewhat to the location of the pancreas. Nausea and vomiting are usually present during the first two or three days. On most occasions there is no fever. None of the manifestations of shock are present except that frequently a tachycardia

will be noted. Examination will reveal tenderness over the upper left abdomen which is acute at first but gradually subsides until after several days very few symptoms are complained of. Slight hyperbilirubinemia may be present but rarely is deep jaundice encountered. The leukocyte count is variable, but may be as high as 30,000 or 40,000.

DIAGNOSIS

The diagnosis of either type of pancreatitis is frequently very difficult. Perhaps the most difficulty in differential diagnosis will be encountered in acute pancreatic necrosis, particularly because the pain and tenderness will be so diffuse over the upper abdomen, and the manifestations so acute as to lead one to suspect a perforation of a viscus, if the symptoms are so acute as to produce shock. This feature alone should be sufficient to eliminate the diagnosis of perforation of a peptic ulcer, since perforation of an ulcer produces collapse but not shock. The pulse rate in a patient with a perforated ulcer is frequently normal, and is seldom higher than 80 or 90 per minute during the first few hours after perforation. Pain is severe in either condition, but is perhaps more severe in perforated ulcer. In the group of patients with pancreatic necrosis who show collapse in the absence of shock, extreme difficulty may be encountered in differentiating the two lesions. A roentgenogram of the patient in a sitting position to determine the possible presence of gas under the diaphragm should obviously be taken if a perforated ulcer is suspected. If gas is found the diagnosis will be obvious. If gas is not found the diagnosis of a perforation of an ulcer cannot be excluded because gas under the diaphragm is probably found in only slightly more than half of the patients with perforation of an ulcer.

The diagnosis of acute interstitial pancreatitis will usually not be difficult providing the diagnosis is considered while the patient is being observed. The history of pain in the epigastrium extending to the left upper quadrant and radiating posteriorly to the spine or to the left of the spine, should lead one to suspect the diagnosis of acute pancreatitis. Since gallbladder disease is so commonly encountered along with acute pancreatitis the symptoms of one disease may overshadow the other. The pain in the left upper quadrant produced by the pancreatitis may be so much less pronounced than the pain in the right upper quadrant produced by the gallbladder disease that the patient will not complain of it voluntarily. Specific questions must therefore be asked as to the absolute location of the pain. Confirmation as to this feature may be obtained by examination, particularly for tenderness in the left upper quadrant and epigastrium over the location of the pancreas. The presence of a fever is so variable, as it is in such diseases as gallbladder colic, that the patient's temperature will not be of any value in establishing a diagnosis.

The blood amylase, as popularized by Elman[3] and associates, may be extremely helpful in establishing a diagnosis. It has been proved on innumerable occasions that an experimental obstruction of the pancreatic duct routinely results in a rise in the blood amylase. Certain precautions must be taken in interpretation of results of the blood amylase test. It has been my experience and the experience of other workers using the test, that the rise in blood amylase is present only during the acute stage of the disease and persists only for a few days. Figure 3 illustrates a typical blood amylase curve in acute interstitial pancreatitis. The

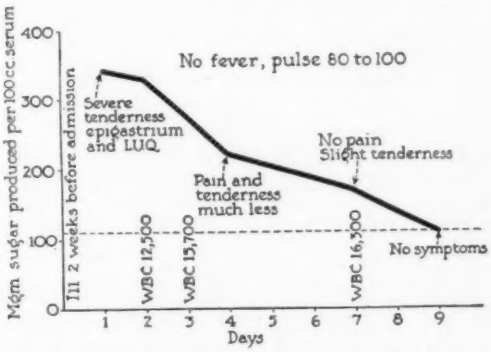

Fig. 3. Blood amylase curve of a patient with acute interstitial pancreatitis. The symptoms were of only 24 hours' duration when the first reading (340), as shown on the chart, was taken. By the end of the fourth day the level had dropped almost to normal. This represents the same patient as Fig. 2.

Somogyi modification* of the Wohlgemuth test is the only one that I have used. The results are expressed in milligrams of sugar produced by the digestive action of 100 c.c. of blood. The normal readings will be found to range from 90 to 170. Elevations as high as 1000 and more may be encountered. Occasionally extremely low readings are encountered in patients suspected of having acute pancreatitis. This has occurred in my experience on two or three occasions, but usually in patients who have had symptoms of pancreatitis for two or more weeks. It was obvious in one patient, who showed a marked rise in the blood amylase which dropped after a few days to a level below normal. As yet insufficient data has accumulated to allow us to interpret these low readings. Occasionally an elevated blood amylase will be found in patients with pancreatic cyst and carcinoma of the pancreas. Rarely indeed will the level be above normal in patients with the so-called chronic pancreatitis.

TREATMENT

There is considerable difference of opinion as to the treatment of acute pancreatic necrosis. Surgeons, including Jones and others, are firmly convinced that these patients should be operated on as an emergency, the capsule of the gland split and the areas drained. However, insufficient data has accumulated in the comparison of operated and unoperated cases to draw a definite conclusion as to the choice of radical or conservative therapy. In an experience with several cases Wangensteen[6] feels convinced that emergency operation offers very little for patients with acute pancreatic necrosis and prefers to delay operation until after acute symptoms have subsided. When an actual abscess exists about the pancreas operation is, of course, definitely indicated. However, by far the greater majority of cases of acute pancreatitis are undoubtedly of chemical origin and not of bacterial origin; if an abscess exists it usually does not develop early in the disease.

There is rarely any doubt that the procedure of choice in acute interstitial pancreatitis should be conservative. The patient should be treated medically with proper fluid and glucose administration until the symptoms subside. In almost every instance observed by the author, the acute symptoms subside after several days and the patient regains a reasonably good physical condition. Most patients will retain mild tenderness over the region of the gallbladder and pancreas for several days or weeks; however, such patients are practically always good operative risks after the acute symptoms subside. Operation can therefore be performed and the correct operative procedure on the gallbladder be carried out. Usually cholecystectomy will be indicated. Stones are frequently found in the common duct which should be carefully inspected and opened if the duct is dilated or its walls thickened. Some observers issue a warning as to the removal of diseased gallbladders in the presence of pancreatitis, on the basis that the gallbladder may be needed later to perform an anastomosis with the pylorus or duodenum to shunt around an enlarged pancreas. I am inclined to agree with Jones[7], who feels that such anastomosis is rarely indicated. Jones remarks, in fact, that in his experience with 2500 cases of cholelithiasis, he has never encountered an instance when he needed to perform a "cholecystgastrostomy for chronic interstitial pancreatitis". The treatment is therefore directed toward alleviation of the gallbladder disease.

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* Colloidal suspension of 1½ per cent washed (C. P.) corn starch is prepared as a starch solution which if sterile keeps fairly well; the formation of molds makes it unsuitable. To 5 c.c. of this suspension, 1 c.c. of the patient's plasma or serum and 2 c.c. of 1 per cent sodium chloride are added, and the mixture incubated for thirty minutes at 40° C. Then 1 c.c. of 5 per cent $CuSo_4$ is added immediately, the mixture is shaken and 1 c.c. of 7 per cent sodium tungstate is added; the mixture is again shaken and filtered. Sugar determination is made on 5 c.c. of the filtrate. From the total amount of sugar formed by the hydrolysis of the starch, is subtracted the amount of sugar present in 1 c.c. of the patient's serum. The result is expressed in milligrams of sugar per 100 c.c. of blood. Normally 70 to 200 milligrams of sugar will be produced by 100 c.c. of blood serum in this way. At the height of an acute pancreatic obstruction or inflammation this value may reach a figure as high as 3000 milligrams, i.e., milligrams per 100 c.c. of blood. (From Cole and Elman's Text Book of General Surgery, D. Appleton-Century Co., 1936.)

SUMMARY

Although tryptic digestion is undoubtedly one of the most important factors in the pathogenesis of acute pancreatitis there are undoubtedly many factors which may play a part in the etiology of the disease. Gallbladder disease is encountered in at least 70 per cent of patients with acute pancreatitis. In fact all of the patients with acute interstitial pancreatitis that I observed had gall stones; roughly two thirds of them had stones in the common duct.

In my experience, the pain of acute pancreatitis simulates that of so many other acute diseases in the upper abdomen that a correct diagnosis of acute pancreatitis will rarely be made unless the physician is seriously considering that disease in differential diagnosis. The manifestation which is most reliable in making the diagnosis is pain and tenderness in the left upper quadrant over the location of the pancreas, and which radiates to the vertebral column or to the left of it. The most reliable single factor of value in diagnosis of acute pancreatitis is the blood amylase test. Rarely will it fail to show an increase far above normal, providing the test is performed within the first few days of the disease. The blood amylase curve falls rapidly to normal.

The treatment of acute interstitial pancreatitis should undoubtedly be conservative in the acute stage; after the acute attack subsides, operative treatment should be directed to the gallbladder if it is found diseased. There is disagreement as to the choice of treatment in acute pancreatic necrosis although most surgeons probably favor emergency operation. I am not convinced that more lives will be saved by this procedure of emergency operation unless an actual abscess exists.

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DISCUSSION

Dr. Walter Moss (Lake Charles): At the Charity Hospital in New Orleans, the treatment of pancreatic necrosis has been considered an emergency. In the treatment of this condition I have always felt that, as soon as the patient was in sufficiently good condition, the abdomen should be opened, the capsule of the gland broken up and drains inserted through the capsule of the gland, through the gastrocolic ligament to the omentum. In a great many cases, this has been abandoned. There are primary factors, which in many instances have nothing to do with the condition at hand, but these primary factors have to be treated. We have a patient in a serious condition—this is, of course, with the necrotic type—and often there is not enough time to permit us to do away with the gallbladder. However, sufficient exploration should be made, and in a number of cases the gallbladder has to be opened and drained. In these cases sometimes it is possible to enlarge the cystic duct opening into the common duct and remove whatever stones are present, draining the common duct and inserting a T tube, allowing egress through the abdomen. And if there is not time to remove the gallbladder, the tube can be left as a tract for drainage.

With the help of blood amylase determinations it is possible to make a diagnosis, not that I presume any experience of my own with blood amylase tests, but with blood amylase it would seem as though we should be able to determine the degree and progress of necrosis with frequent estimations. In the interstitial type, the pancreas has to be removed and there is no time to wait in this particular case.

If more frequent routine use were made of the blood amylase test when attempting to diagnose patients presenting severe epigastric pain, it is probable that the clinical entity known as acute pancreatitis would not be so rare as it is now considered to be. Even if one has not the facilities for repeated blood amylase determinations, he may definitely learn from one estimation whether or not to include acute pancreatitis as a possibility.

Those of us who practice at a distance from, or have no connection with large clinics or hospitals, see very few cases of acute pancreatitis, but we do see many patients suffering with acute epigastric distress. Some patients in this latter group are diagnosed coronary thrombosis or biliary colic, but

many are discharged with no definite diagnosis. It is apparent that the result of more general use of the blood amylase test will be more accurate diagnoses for these patients.

There is one other point in reviewing this subject. When I first became acquainted with the use of this test by Elman and others, I was impressed with the fact that the determination of blood amylase is something that a great many of us have no knowledge of, and, without a large laboratory, it appeared to me that it would probably take a great deal of detailed technical work actually to determine the quantity of blood amylase in a particular patient. But the test as outlined by Elman, and that used by Cole and others of authority on the subject is relatively simple and can be determined by any of us. Certainly, it is a very helpful diagnostic aid to the clinical pathologist.

Dr. Sidney M. Copland (New Orleans): About two years ago, in the Department of Surgery at Louisiana State University we made an extensive review of the subject at Charity Hospital. We met the disease 11 times in a four year period. This is a relatively small percentage, but it agrees with that of Cope who says it occurs less than 1 per cent. Balcombe Quick at Melbourne, Australia, states the disease occurs almost as frequently as perforating peptic ulcer.

The disease was diagnosed seven times in the 11 instances. This percentage is not bad as compared with that of De Takats and Mackenzie in which the diagnosis was missed 22 times in 22 cases. In our 11 cases, nine were white and two colored. This is unusual for we would expect no great disagreement as the admittance to Charity Hospital is about 50-50 with a slight preponderance towards the colored race. The colored female was the victim in both instances. We did not have a single case of pancreatitis in the colored male in the four year period. That can be explained by the fact that surgical gallbladder is rather uncommon in the colored male.

It may be interesting to note that Rousing and Holtz of Denmark favored the conservative nonsurgical therapy in 50 consecutive cases and they report not a single death. In the four cases that were misdiagnosed at Charity Hospital, they were let alone and they died. One was diagnosed coronary thrombosis. There is a possibility that there is a future in conservative treatment because surgery in acute pancreatitis leaves much to be desired, but this is not the consensus of opinion nor is it our opinion.

I would like to know Dr. Cole's opinion of the urinary diastase test. We do know that the normal of 10-20 units is greatly increased in acute pancreatitis. Mushin, of Melbourne, reported 26 cases diagnosed on this basis and subsequently proved at operation; one case showed as high as 4100 units and the lowest in the series showed 50 units.

Dr. Daniel N. Silverman (New Orleans): Acute pancreatitis is of great interest to the internist from the standpoint of etiology as well as prevention; from the etiology because there may be gallbladder disease production of acute pancreatitis without the production of stones. It goes to the maximum of production from gallbladder disease to the development of pancreatitis. As pointed out by Boyd and Wheeler and others, emulsified food is offered as a stimulant of the gallbladder. For this reason, following their work, Denis and I, in the study of pancreatic enzymes in humans found that the food which stimulated the pancreas to its maximum extent was fat and protein, and least of all the carbohydrates. However, without the stimulation of carbohydrates, I found that the starch enzyme present sufficient to digest food. In this way, the gallbladder and biliary tract, are rested or relieved of embarrassment, the patient encouraged, and health goes on just the same.

With reference to the biochemical problem in the diagnosis of acute pancreatitis, first of all I believe we all recognize the fact that operation does not ensue with the first attack of pancreatitis. No doubt many attacks of pancreatic pain are not necessarily acute gallbladder attacks, but common attacks of acute pancreatitis. Comfort showed that some of his patients had been operated on subsequent to the first attack, but that during these attacks, some of which were mild, they would show definite increase in the blood icterus above the normal, just as Dr. Cole pointed out marked increase in the blood amylase during the attack. However, I wish to bring you back of the complications of biliary disease to show that if the patient's duodenal contents are determined no doubt we shall anticipate some of the complications, recognizing the fact clinically as pointed out by Judd, that 30 to 40 per cent of biliary infections are associated with chronic infection of the pancreas.

Dr. Warren H. Cole (In conclusion): I have nothing to add except to answer Dr. Copland's question as to urinary diastase. I have not had any experience with it myself, but have talked to men who have used the test, and since there is more urinary diastase than blood diastase, the test should theoretically be just as good.

PHYTOBEZOAR OF THE STOMACH ASSOCIATED WITH GASTRIC ULCER*

C. P. RUTLEDGE, M. D.
SHREVEPORT, LA.

Foreign bodies in the stomach are of two classes:

1. Those swallowed in their already formed state, such as marbles, coins, screws, nails, nuts or glass.
2. Foreign bodies which take on formation after being swallowed such as hair, persimmons, food particles, vegetable fibers and specific liquids.

Bezoars come under the second class. Bezoar is a Persian word and is defined as: "A concretion of various characters from the stomachs of different animals; formerly highly valued as a medicine."

CLASSIFICATION

1. Trichobezoar
2. Phytobezoar
3. Trichophytobezoar
4. Shellac bezoar

1. The trichobezoar, or hair ball, is the most common and is usually found in young girls or highly nervous individuals who bite off their hair and swallow it. Some of them roll it into balls and swallow. This type of bezoar forms very gradually and may be months or years in the process of formation; is added to, from time to time and frequently almost completely fills the entire stomach.

2. The phytobezoar, which is commonly known as the food ball, is composed of skins, seeds, vegetable and fruit fibers, persimmons, prunes or celery.

3. The trichophytobezoar, or hair food ball, is composed of hair mixed with food particles and forms gradually, very much as does the trichobezoar.

4. The shellac bezoar is, as the name implies, composed of shellac which is precipitated in the stomach after the drinking of strong alcoholic solutions of shellac. This is the least common of the bezoars and is usually seen in painters and furniture finishers who use strong alcoholic solutions of shellac.

I will deal principally with the phytobezoar especially the one composed of the persimmon. The first authentic case of persimmon bezoar was reported by Outten[8] in 1894. Since then about 35 cases have been reported in American literature and many in the Japanese but few, if any, in other countries. This is probably due to the fact that the persimmon is very common in America and Japan and very scarce or not present in other countries. The phytobezoar is formed entirely at one time and is not added to as in the case of the hair ball or food hair ball. The food ball forms very soon after the ingestion of the food and attains its full size at that time. It may remain in the stomach for days, weeks, months or years but never grows larger.

ETIOLOGY

The conditions under which the persimmons are eaten apparently have quite a lot to do with the formation of the bezoar. Careful study of the reported cases shows that the individual ate the fruit in liberal quantities while hungry or fasting and on a practically empty stomach. No other food was taken with the persimmons and no water was drunk at the time of the meal. This type of bezoar is usually seen in the farmer, hunter, golfer or outdoor man who, while on a tramp, and hungry, eats a large quantity of this rather luscious fruit on an empty stomach without drinking water or other fluids. Persimmons have a great gum and pectin content and when eaten on an empty stomach, at the time when the gastric content is rather concentrated with hydrochloric acid, "precipitation" of the pectin and gums is favored, which during their solidification incorporate the fibers, skins and seed causing the formation of the bezoar.

SYMPTOMS

These are essentially the same as in acute gastric ulcer or acute gastroenteritis. Pain is a frequent symptom. It may come on soon after the ingestion of the offending food or may be delayed for hours or days. Gastric discomfort is continuous; there may be some periods of relief but the patient always feels

*Read before the Louisiana State Medical Society, Monroe, April 27, 1937.

uncomfortable; epigastric pain is present with or without tenderness and is often associated with muscle rigidity, at times very typical of gallbladder disease. There is usually no loss of weight although the condition has existed for months or years. The more or less constant pain is aggravated by food but sweet milk sometimes gives temporary relief. My patient had to resort to milk diet to obtain any appreciable relief. Nausea and vomiting are sometime more or less constant; my patient complained of neither.

DIAGNOSIS

A carefully taken history will usually suggest the diagnosis. Palpation may disclose an epigastric mass which is movable, usually not tender and changes position very readily as the patient changes his position. There may be some difficulty in getting a concise history as the patient may not think the persimmon meal of any importance as he has had many previous such meals without discomfort. Phytobezoars have been mistaken for floating kidney, carcinoma or gastric tumor, hair ball, movable spleen, polyp or adenoma.

Roentgen ray examination with a careful history is usually conclusive but Hart[6] reports one case in which three series of roentgen ray examinations did not reveal the phytobezoar and the surgeon missed it on doing a gastroenterostomy. It later caused an intestinal obstruction after passing through the gastroenterostomy opening and was removed surgically. Gastric ulcer is a frequent finding and may or may not pre-date the formation of the bezoar. In my case it undoubtedly occurred after the formation of the phytobezoar purely from mechanical irritation. This patient, prior to his enormous persimmon meal, gave no history or symptoms of ulcer and after removal of the phytobezoar has had no symptoms suggestive of ulcer.

ROENTGEN RAY EXAMINATION

Examine with the use of the barium meal, fluoroscopic screen and films as in routine gastrointestinal study. As the meal enters the stomach it can be seen to run around a movable mass which is present near the pylorus. As the stomach fills, this mass can be seen to rise toward the upper half of the stomach and soon occupy a position in the gas bubble, (patient erect). This mass will shift positions as the patient is rolled from side to side and when in Trendelenberg position it will migrate back to pylorus; sometimes it can be palpated, sometimes not. An ulcer is often present on the lesser curvature near the pylorus. Examination made six hours after ingestion of barium meal will usually show the stomach empty of the meal but frequently the barium coated phytobezoar can be outlined on the film.

TREATMENT

The treatment is essentially surgical. Other methods of treatment have been tried but are considered dangerous. Some patients have been treated by giving hydrochloric acid orally which at times caused disintegration of the mass which passed through the intestinal tract in several lumps or small particles. This method is to be condemned as there is the possibility of one or more of these broken up pieces lodging and causing intestinal obstruction. The phytobezoar has also been broken up by palpation and the small masses seen to pass through the intestinal tract. This method is also inadvisable as there is a danger of perforating a gastric ulcer which may be present and also the possibility of intestinal obstruction. The ulcer is usually not treated and will generally heal after the mass is removed. Some surgeons excise the ulcer and remove the bezoar through this incision.

Always look for more than one mass and make thorough exploration of the stomach to see that none of the bezoar remains. The masses are sometimes multiple. Some surgeons advise an opening large enough to admit the hand so that the stomach can be examined manually from end to end.

Prophylactic treatment is advisable to avoid the formation of bezoars. Never eat large quantities of persimmons while fasting or on an empty stomach. Eat in moderation and preferably with other food and water. Masticate well and do not swallow the seeds.

CASE REPORT

J. G., a white man, aged 24, farmer, a patient of Dr. T. P. Lloyd, was referred for roentgeno-

logic examination on December 7, 1936, with a clinical diagnosis of gastric ulcer. He had been in excellent health until about ten days ago when he awoke at 2 a. m. with severe pain in the epigastrium. He was not nauseated and did not vomit. On the afternoon previous to this attack, while out hunting, he ate an enormous quantity of persimmons on an empty stomach, as he was very hungry. Immediately after his attack of pain he took castor oil and followed with calomel and epsom salts. Bowel movements were black for one day following this purgation but have not been since then. Pain in epigastrium has been constant since the initial attack, is aggravated by deep breathing and food except milk which gives temporary relief. He has lost no weight and appears well nourished. The past and family history show nothing of importance.

Physical examination by Dr. Lloyd: The patient is a fairly well developed and nourished white male about 24 years of age, apparently not acutely ill. Heart is regular in rate and rhythm, no apparent cardiac enlargement. Heart sounds are clear and no murmurs are heard. Chest shows nothing abnormal to palpation, auscultation or percussion. The abdomen shows some rigidity in epigastrium and left hypochrondrium with definite tenderness over these regions. No abnormal masses are felt and liver and spleen are not enlarged. Extremities are negative. Blood examination and urinalysis show no marked deviations from normal. Roentgenologic examination with barium meal on December 7, 1936 revealed a large filling defect in lower half of stomach which gradually migrated to the upper half as the stomach became filled with the barium mixture (patient erect). This was interpreted as a movable mass which changed position upon palpation or movements of the patient. No mass could be felt with the palpating hand although its outline could be plainly seen on fluoroscopic screen.

A large penetrating ulcer was clearly outlined on the lesser curvature slightly prepyloric and very definite localized tenderness and muscle rigidity were noted upon pressure over this area. A film made six hours after ingestion of the barium meal showed stomach empty except for a barium coated, pear-shaped mass. This shadow was cast by the barium coated phytobezoar and had entirely disappeared on the 24-hour film.

The conclusions from the roentgenologic examination were: "Phytobezoar (persimmon) in the stomach associated with a perforating ulcer on lesser curvature about two inches proximal to the pylorus."

Surgical removal of the bezoar was advised. On December 10, 1936, Dr. J. A. Hendrick removed a persimmon bezoar three and one-half inches long by two and one-half inches in diameter. He also found a large penetrating ulcer present over the lesser curvature, slightly prepyloric. The ulcer was not excised or treated in any way. The patient made an uneventful recovery and is now free of any gastric symptoms. After the mass was removed close examination showed a more or less cylindrical dark brown mass with its lower end assuming the shape of the pyloric end of the stomach. On its superior margin there was a rather jagged and roughened edge corresponding with the site of the ulcer seen on lesser curvature; no doubt this roughened edge by its constant friction both caused and aggravated the ulcer.

SUMMARY

We should all become phytobezoar conscious as I feel that many of these cases are being erroneously diagnosed or not diagnosed at all. A good history and careful roentgenologic study should detect practically all persimmon phytobezoars.

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DISCUSSION

Dr. L. W. Magruder (New Orleans): I think this is a very valuable paper. I have never seen one of these bezoars and I have done roentgen ray work in the South for twenty years. The explanation of them is that persimmons contain a resin, a gum, and have pectin, and these resins and the pectin especially are precipitated by the hydrochloric acid when the stomach is empty. If I remember, Schulze in the Southern Medical Journal in 1932 reported 19 cases, and upon investigation it was found that the content of gum, resin and pectin in the bezoars was 14.1 per cent, which is extremely high. This makes it possible to have the seeds and the fibers incorporated in these substances precipitated by the hydrochloric acid. The pectin in the fruit causes the bezoar to jell, and it is this jelly-like substance which forms the bezoar.

In Schulze's cases, there were nine cases that were diagnosed preoperatively, so I think Dr. Rutledge can compliment himself that he was able to diagnose this so readily with the roentgen ray. I have studied the stomach over a period of many years and have looked for those foreign bodies, but so far have never seen one. I may have missed them, of course, but I never examine a stomach that I do not keep in mind a foreign body of some kind, and especially bezoars.

Dr. J. M. Gorton (Shreveport): I am interested in that man's ulcer. We have many people going about the country swallowing glass and nails and do not see much trauma to the mucous membrane. It is probably a question of the concentration from the great amount of pectin in the persimmon. The seeds may have something to do with the ulcer. It might be that the boy had the ulcer and this aggravated it, and the treatment, period of rest, acted on the ulcer. I would like Dr. Rutledge to do a G. I. series on that boy again and see how the stomach looks now.

Dr. C. P. Rutledge (In conclusion): Nothing was done for this man's ulcer and after operation, he had no further symptoms from the ulcer. If you had seen the man and seen the jagged edge of the bezoar, you could readily understand that every peristaltic movement pushed it down against the ulcerated area. He has had no symptoms of ulcer since his operation, and had none prior to his swallowing the persimmons. I went into that part of his history very carefully, so personally, I consider his ulcer subsequent to his swallowing the persimmons.

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WELCOME—SOUTHERN

At the time this number of the Journal appears the Southern Medical will be just about ready to commence its annual meeting, this year to be held in New Orleans. To the members of the Southern Medical we extend all good wishes. We hope that you will have one of the best meetings you have ever had; the program certainly looks as if it would be one of the best. We hope you enjoy the pleasures and hospitality of New Orleans. We hope you will leave with the most pleasant recollections of our city and of our hospitality.

We, the doctors of New Orleans and Louisiana, hope you will have such a good time and learn so much that in the not distant future you will come back again to our historic city and beloved state.

PROBLEM OF TUBERCULOSIS

It is very generally assumed that tuberculosis is being more and more adequately controlled than it was in the past. Figures substantiating this observation show there has been a steady fall in the death rate in the last three decades. It is disconcerting, therefore, to find that the tuberculosis mortality in 46 cities has risen two per cent in the last recorded year, 1936, as contrasted with the year 1935. This is, we believe, the first increase that has taken place in many years.

In so far as tuberculosis in New Orleans is concerned, the death rate per 100,000 population, namely 121, has remained the same for the past two years; there has been no increase nor decrease. There were 618 deaths from this disease in 1936, including residents who died out of town.

It is well known that the death rate from tuberculosis among negroes is high. In New Orleans, in 1936, there were 370 negro deaths as contrasted with 350 the preceding year, an increase of four per cent in the 1936 rate. The negro deaths represent 60 per cent of the total number. It is possibly of some satisfaction to note that the death rate among the tuberculous negro in New Orleans is considerably lower than it is in many other cities, more notably in some of the large cities of the North. The negro death rate is 267 as contrasted with figures in Cincinnati of 444, in Cleveland of 328, in New York City of 329. On the other hand, Birmingham and Atlanta have a rate respectively of 196 and 178.

The death rate among the white population is high. In this city the rate is 68, a rate which is exceeded by only Denver, San Antonio and Los Angeles, all cities to which the tuberculous flock for climatic reasons. It is rather unpleasant to note that New Orleans in total

death rate leads all cities in the country except San Antonio and Memphis; our rate is 121, that of Memphis 140, that of San Antonio 163. There are only three other cities in the country with a rate of over 100: Baltimore, Washington, D. C., and Cincinnati. In some cities the rate is as low as one third that of New Orleans. It is realized and appreciated that a considerable number of deaths in New Orleans occur in the migrants to the tuberculosis wards of the Charity Hospital; however, this probably accounts for only a small percentage of the total number of deaths. The negro cannot be blamed entirely for our high death rate, for the negro rate is materially higher in many other cities than it is in New Orleans. We are faced with the unpleasant fact that we are in the position of third from the top in the death rate of persons suffering from this disease which is preventable and which can be controlled.

What is the remedy? Always there is the same demand—more money! The early closed cases of tuberculosis might well be hospitalized in existent institutions, but it is only with more funds that it will be possible to build sanatoria to take care of the patient with advanced tuberculosis who is expectorating literally millions of tubercle bacilli every day. He should be more or less segregated from the rest of the population. If it would be possible to place in sanatoria these patients who represent dangerous foci for the dissemination of tubercle bacilli, undoubtedly our death rate would be materially diminished. There is a crying need for tuberculosis sanatoria outside of the city and removed from the larger centers of population. This is one of the great needs of our state and, in the mind of the physician, one of the paramount requirements for the adequate control of tuberculosis. It is so important that many in the medical profession feel that this need should take precedence over any other measure requiring money which may come up before the legislature.

SULPHANILAMIDE TRAGEDY

The lay press and the Journal of the American Medical Association, as well as other vehicles for disseminating information, have called widespread attention to the deaths that have occurred, for the most part in the far South, as result of taking of elixir of sulphanilamide. It would hardly seem necessary to speak of this as a news item; it is well known everywhere both among medical men and the laity, but the tragedy of some seventy people dying as result of a medication which was untried and which apparently was not tested out either on man or animal before being sold to the medical profession and even to the laity, seems to justify a few words of comment.

Apparently the toxic effect of elixir of sulphanilamide depended upon the vehicle for the incorporation of the drug, namely diethylene glycol. The action of this toxic agent is not immediate; sometimes it takes days before it acts and it seems that the most important toxic effect is on the kidneys. Unfortunately there is no known remedy for the drug. There is no way of forecasting what would be the end result after the dose has been taken by the patient, but if anuria develops it may safely be foretold that death will take place in two to seven days.

The tragedy of this whole small catastrophe lies in the fact that there is absolutely no restriction in our present food and drug laws whereby the drug manufacturer may not put out whatsoever he wishes. Certainly the food and drug laws should be amended and strengthened so that an affair like this cannot recur. It is also unfortunate that the medical profession as a whole does not realize that drugs which are accepted by the Council on Pharmacy and Chemistry of the American Medical Association are tested thoroughly, their toxicity determined and the proper dosage obtained. Practically all of the high class pharmaceutical houses now submit their products to the A. M. A. Council before bringing them out to the general profession. Unfortunately there are many smaller wholesale drug purveyors who depend largely for their profits on the sale of patent medicines and who, without check or control, peddle their wares to druggists and doctors, often through untruthful literature and prevaricating salesmen. In all probability, if the safety to life factor be of no import, at least it is reasonably sure that the pharmacologic action of the preparations, brought out under such auspices, is inert or valueless.

If our profession would only realize that until a remedy is official or appears in the new and non-official remedies, certified by the American Medical Association then, and not until then, will it be wise or safe to give the preparation.

CHRONIC DIETARY DEFICIENCY

The man in general practice knows that there is a large group of patients who suffer from vague, indefinite and bizarre symptoms, many of which are ascribed to neurasthenia. The patient is said to be neurasthenic or psychasthenic or even just a chronic complainer. These people are often found to be lean and poorly nourished. They usually have an anemia, not particularly marked, but definite. Anorexia and constipation are almost invariable. Other gastrointestinal symptoms are common expressions such as belching of gas, cardiospasm and vague abdominal discomfort. These patients have marked ease of tire, and fatigue readily. The physician appreciates that they are substandard physically and possibly constitutionally.

A lead to the diagnosis may be obtained if such people say that they are selective in their food intake; that they do not like or will not take certain foods. If the individual happens to be a nursing mother or a person who has some type of alimentary tract disease associated with diarrhea, if she happens to have hyperthyroidism or if recently recovered from a febrile or wasting disease, the possibility definitely exists that she may suffer from a lack of the needed components of the diet which are referred to specifically as the vitamins. Clear-cut avitaminoses produce very definite symptoms but, in a person suffering from a chronic dietary deficiency, the syndrome is not that of a beriberi or a scurvy but merely "a malnutritive state characterized by a group of non-specific symptoms and signs arising from deficiency in the diet of any, or theoretically, all the essential food factors." These individuals fail to secure an optimal intake of minerals and vitamins. It may be that the result is dependent upon anorexia or food idiosyncrasy or through disease but, under any circumstance, what these people require is not a minimal but an optimal intake of vitamins. One of the most characteristic expressions of avitaminosis is loss of appetite; modifying the diet, the appetite incidentally being stimulated through free feeding of foods high in vitamins, notably A and to lesser extent B and C, will produce an improvement which is sometimes astounding in the subject suffering from chronic dietary deficiency.

Merely because a patient says he does eat a well rounded diet is no reason to assume that such is the case. Certain people need a greater amount of vitamin than do others and they should be fed a correspondingly greater amount in order to secure improvement in their substandard nutritive condition. It is perfectly remarkable at times to see the physical change that takes place in a individual who complains of a gastric disorder and who has cut the food down to what is spoken of as a bland, non-irritating diet if his gastric symptoms are disregarded and he is given food which might be called irritating. If these patients cannot or will not take such a diet then it is well to supplement the food intake by some of the vitamin concentrates or to give them cod liver oil or viosterol. Have them, if possible, take the natural substances high in vitamin content but, if not, insist upon synthetic vitamins or manufactured foods rich in these oft disregarded vital substances.

HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

J. T. NIX CLINIC
NEW ORLEANS

At the meeting held in November, Dr. Manuel Garcia presented the following paper:

THE ETIOLOGY OF CANCER: A REVIEW

It has long been a respected practice to state that the nature and etiology of cancer remain enshrouded in the deepest mystery. This is a gross injustice to the legion of investigators who, through unremitting devotion and boundless energy, have contributed so much to our understanding of this, the most fascinatingly complex subject in the whole realm of cancer.

Modern pathology teaches that cancer is not a single disease but a generic term applied to a multitude of diseases, characterized by an autonomous, purposeless, unlimited proliferation of the cells in some locality of the body, and manifested clinically by an infiltrative tumor, metastasis, recurrence after removal, cachexia and almost invariably a fatal termination. Thus cancer is a process and not a clinical entity comparable to syphilis. Individual neoplasms vary widely in their conditions of origin, clinical course, physiology, and morphology, in all instances as strikingly as the individual infectious diseases differ from each other.

Cancer is to be regarded in accordance with the original conception of Virchow as one of the three fundamental phenomena of life: namely, normal growth and development; inflammation, the defense reaction to injury, and neoplasia, aberration of growth. All living organisms under the stimulus of physical, chemical and microbic agents react in two ways: by exudation, necrosis, and regeneration, which constitutes inflammation; or by progressive, limitless proliferation that is recognized as neoplasia. Why in one instance neoplasia rather than inflammation should be the issue must be referred to intrinsic cell potencies, which lie hidden in the obscurities of intracellular life. All tests have proved that tumor cells are homogeneous with those of the host and incapable of evoking a systemic defense reaction of any known type. No immunologic reactions occur in cancer, and tumor metabolism differs from the normal only in degree and not in kind. The peculiar respiration of cancer cells is to be regarded as a contribution to general cell physiology, since this property is not constant in malignant tumors; it is shared by embryonal and some normal adult tissues, and its removal may not affect the malignant capacities of the cells. Homogeneity can be further shown by the fact that tumor cells often are able to secrete, as well as the normal cells from which they are derived, by their partial control through general metabolic and humoral factors, and by their tendency to undergo degenerative changes. Pancreatic island tumors produce insulin; adrenal tumors yield cortin, and erythroblastomas manufacture hemoglobin on a large scale. Cancer increases with overweight and diminishes with exercise. Charlatans temporarily restrain growth by starving their patients. Recently tumor growth has been completely arrested in experimental animals by excluding the essential amino acids from the diet.

More fundamentally, the doctrine of cancer as a universal cell property can be supported by the occurrence of neoplasms in all animals, and even in plants; by the existence of cancers derived from every type of cell in the body; by the exaggerated tendency of embryonal cells to undergo cancerous degeneration, as in atrophic and vestigial organs (chordoma, branchial carcinoma, and hypernephroma).

As Ewing says, oncology cannot be regarded as a department of embryology, but Cohnheim's theory accounts for the frequent development of growths on the basis of embryologic aberrations. "In the field of teratology one can construct an unbroken series from cancer to twins."

Maud Slye's work on heredity of various tumors in mice is usually looked on as having little importance in regard to human cancer (Craver). But there are particular tumors in man that undoubtedly have an hereditary basis, such as neurofibromatosis, entailing a certain risk of neurogenic sarcoma, gliomas of the retina, multiple skin cancer on the basis of xeroderma pigmentosum, osteogenic sarcoma on the basis of multiple enchondromas and exostoses.

A history of the occurrence of cancer, more frequently in families of cancer patients, is usually interpreted as indicating a combination of factors, such as age, occupation, habits, and anatomic and physiologic peculiarities, rather than a true inheritance of susceptibility or resistance to cancer.

Given, therefore, this potentiality for unrestrained multiplication in all living cells, influenced to some extent by genetic, hereditary and embryologic factors, there remains to be seen what factors bring it into activity. The variety of external influences now known to act as exciting agents of cancer is very great and covers almost every class of natural forces. Many act rather directly, and others more indirectly. They include: (a) mechanical trauma, when repeated; (b) physical agents; heat, sunlight, roentgen rays, and radium; (c) chemicals, organic and inorganic; such as arsenic, zinc chloride, coal tar and other products; (d) organic cell products; hormones, and decomposition products of bile acids; (e) bacteria, especially the tubercle bacillus, B. caviae

(Lacassagne), the virus of infectious epitheliosis (Shope); (f) animal parasites.

The effect of repeated trauma is seen in mouth cancer from imperfect dentures; of heat, in the cancers of the skin in locomotive firemen; of sunlight, in the skin cancer of sailors and farmers; and of roentgen ray in the fatalities among pioneer radiologists. Epithelioma of the skin has been produced by ultraviolet radiation by Ruffo, and sarcomas have arisen in animals exposed to roentgen rays. Radiation cancer has also been seen as a result of injudicious treatment of pruritus ani and facial hypertrichosis. Painters of radium dials have developed osteogenic sarcoma. The Schneeberg and Joachimstral miners, in the mountains of Saxony and Bohemia, have cancer in the lungs now principally attributed to the inhalation of emanations of radio-active minerals.

Animal parasites lead, in man and lower animals, to a variety of chronic irritations that produce cancer. In Egypt, bilharzia infestation of the bladder (Schistosomum hematobium), is known to be followed by cancer of that organ in a goodly proportion of cases. Ewing has found trichinae in a number of cancerous tongues. Febiger demonstrated that spiroptera, a nematode worm, carried by cockroaches, was responsible for carcinoma in the stomach of rats. Bullock and Curtiss succeeded in producing a sarcoma of the liver of rats by feeding these animals with the eggs of the cat tapeworm. It is needless to say all efforts to isolate a specific microbe as the cause of cancer have been fruitless.

Since the recognition of chimney sweeps' cancer by Percival Pott in 1820, a long list of cancer inducing chemicals, has been discovered. Bungeler administered small doses of indole to mice over long periods and reported the subsequent development of leukemia, aleukemic myelosis, lymphadenosis and lymphosarcoma. Recently Japanese workers have shown that certain neoplasms (cholangioma, adenoma of the liver, hepatoma, and cancer of the bladder) can be provoked by experimental ingestion of relatively simple nitric compounds. Bernard injected small amounts of tar into the femoral marrow of young white rats and reported the development of erythroleukemia.

The prolonged administration of arsenic, as in psoriasis and other skin diseases, may be followed after several years by a pathognomonic type of multiple warty keratoses, a condition which not infrequently serves as the basis for multiple warty keratoses, a condition which not infrequently serves as the basis for multiple epitheliomas.

In the aniline industry, 4 to 5 per cent of the workers develop cancer of the bladder. The tumors appear at any time after two years of exposure. Janssen reports the occurrence of cancer of the bladder in patients with psoriasis who had been treated with tar over long periods. With the knowledge that aniline is derived from coal tar, investigators used this substance to induce cancer artificially. In 1915 Yamagiwa and Ichikawas were the first to report cancer of rabbits' ears by applying tar. Kennaway of London, noting that crude petroleum from certain geologic strata did not produce cancer, set about to discover the specific substance that was present in the active tar. Following the lead of Block and Dreyfuss, who could produce cancer more effectively by a high temperature distillate of tar, Kennaway succeeded in isolating a compound, dibenzanthracene, from coal tar, which when removed from the tar left it inert.

Cook, a colleague of Kennaway, working at the London Cancer Hospital, began the study of bile acids, having in mind their structural similarity to known carcinogenic agents. By slight chemical changes which might be conceived as taking place in the human body, he succeeded in producing cholanthrene, a substance very similar in structure to dibenzanthracene, and the most powerful known carcinogenic agent. This was an epochal advance because it connected the production of cancer in animals by coal tar with the possibility of a similar substance from bile acid or perhaps some necrosing tissues in the human body.

Kennaway and Cook therefore suggest that under some conditions the sterols normally present in the body, such as ergosterol, cholesterol, and the testis and estrogenic hormones, might undergo such chemical alteration as to become carcinogenic. Moreover, it has been found that some of the carcinogenic derivatives of tar are capable of producing estrus in castrated rats and mice. This leads to the consideration of the influence of hormones in carcinogenesis. Early castration of female mice belonging to strains having a known high incidence of mammary cancer reduces the cancer rate to zero or nearly so. Lacassagne has succeeded in producing mammary cancer in male mice by injecting large doses of an estrogenic substance. He has reported the presence of estrogenic substance in human colostrum and in cyst fluid from the breast of a woman with mammary cancer.

Bagg injected zinc chloride into the testes of fowls and succeeded in causing the development of teratomas during the mating season. By treating these fowls also with injections of anterior pituitary-like substance, he has been able to obtain teratomas at other seasons. There is thus demonstrated experimentally the combined influence of hormonic stimulation and chemical irritation.

Many clinical observations support the contention that cancer is a universal cell property flamed into activity by irritation of a persistent chronic type. Pathology of long duration of any nature

may lead to cancer. Hence the doctrine of precancerous lesions has a sound foundation.

In cancer of the breast there is a high proportion of histories of previous abnormalities of function, such as caked breast, abscess, miscarriages or complete lack of use of the breast. Such observations support the theory of irritation of duct epithelium by retained secretions containing butyric and lactic acids and possibly more specific carcinogenic agents.

When osteogenic sarcoma occurs in patients over fifty years of age, in at least 28 per cent it is on the basis of Paget's disease.

In the large intestine, certain cancers are known to arise on the basis of adenomatosis, polyposis or ulcerative colitis. Cancer of the cervix is mainly a disease of multiparas, with lacerations, erosions and chronic cervicitis.

According to Dean, teratoma of the testis is from forty-seven to two hundred and seventy-three times more frequent in undescended testes.

In the skin, numerous types of abnormalities may be precancerous; pigmented moles, xeroderma pigmentosum, sebaceous cysts, scars of lupus and old burns, and chronic ulcers.

Syphilis probably does not foster the development of cancer in any general sense but only in certain locations, such as the tongue, where syphilitic glossitis and leukoplakia may form the basis for multiple carcinomas. Tuberculosis was formerly believed to offer a certain antagonism to cancer. Yet there is a good percentage of cases of epithelioma on the basis of lupus, and cancer of the lung may develop in the walls of tuberculous cavities. "Tuberculosis appears to have some definite but at present indefinable relation to Hodgkin's disease."

In summarizing it may be said that cancer is a biologic phenomenon exhibited by all living organisms, and is the expression of an inherent property of all cells, an aberration of growth, which is evoked by long continued irritation with agents of all types. Since the neoplastic cells are homogeneous with normal tissue cells, many tumors are governed in their development by genetic, hereditary and embryologic factors. Recent research has shown that in the metabolism of the sterols naturally occurring in the body, and in disturbances of hormones, may reside the intrinsic irritant responsible for many clinical neoplasms. From the clinical standpoint, chronic long standing pathology in any area may be looked on as a potential inducer of cancerous degeneration.

TUMOR CLINIC
SHREVEPORT CHARITY HOSPITAL

The first weekly meeting of the Tumor Clinic Staff, following summer vacation, was held in the amphitheatre on Tuesday, October 5, 1937, with Dr. E. L. Sanderson, Director, presiding and forty-four physicians in attendance. The monthly report for July revealed 88 new patients and 145 return patients for follow-up examination; August, 76 new patients and 195 return examinations; September, 72 new patients and 229 return examinations.

Dr. Harold G. F. Edwards, Assistant Director, presented the following cases and discussion during one of the weekly meetings and the abstract which follows is taken from the many cases presented that month.

INTRA-ORAL CARCINOMA

Case 1. This patient, a white female, 62 years of age, was admitted June 22, 1937 with a complaint of sore mouth. One year ago she first noticed white patches in mouth and shortly thereafter a small ulcer appeared in right side of mouth near second upper molar; this healed following local treatment. About three weeks ago a sore appeared in the anterior floor of the mouth. *Physical Examination*: The oral hygiene was good. Scattered areas of white plaques varying in size 0.5 to 1 cm. were seen on the buccal mucosa and lateral borders of the tongue. In anterior right floor of mouth near frenum of tongue was an ulcerated, hypertrophic growth with sessile base, the tumor measuring 1 cm., with practically no infiltration in the adjacent tissues. The lesion was quite painful. No regional adenopathy was discovered. *Pathologic Examination*: This was made by Dr. Mathews, and revealed squamous carcinoma Grade II. Treatment of this patient consisted of peroral H. V. roentgen rays, administered through a small portal, 2.5 cm., a total of 6,000 r/o in 20 days' time, the fractions being 300 r/o daily. In addition to the radiation treatment the patient was placed on daily doses of one teaspoonful of magnesium sulphate each morning to combat the leukoplakia. By the time the series of treatments were completed the tumor had almost completely melted away and examination three months later showed complete disappearance of tumor with healing in the mouth and no evidence of nodes.

Case 2. A white male, aged 71, was admitted August 4, 1937, with complaint of sore on tongue. Several weeks ago he first noticed a growth under right side of tongue. *Physical Examination*: The mouth was edentulous with an ulcerated, slightly pedunculated growth 2 cm. in size protruding from the under surface of right lateral border of the anterior portion of the tongue, with slight infiltration into adjacent tissue. There was considerable pain. No regional nodes were palpated. *Pathologic Examination*: Epidermoid carcinoma Grade II. Treatment consisted of peroral H. V. roentgen rays, administered through a

small portal, 3¼cm., a total of 6,000 r/o in daily fractions of 300 r/o. Examination six weeks following last treatment revealed complete disappearance of tumor but base not completely healed. Examination on October 12 revealed complete healing of tumor base and no evidence of infiltration or former tumor. No nodes found.

DISCUSSION

Two cases of intra-oral cancer are presented, each having been treated with peroral radiation with complete disappearance of the tumor. Intra-oral cancer occurring on the anterior half of the tongue is generally more radioresistant than cancer of the pharynx or base of the tongue. Transcutaneous x-radiation has not proved entirely satisfactory because of the necessary damage to the skin in order to deliver effective dosage to the tumor. The introduction of shock-proof high voltage equipment has made possible the practical application of a method used by me some sixteen years ago. To Hayes Martin goes the credit for its present popularity. Radium therapy in the floor of the mouth frequently causes necrosis and troublesome cellulitis. Peroral x-radiation either alone or in combination with low radium dosage is ideally adapted for the treatment of cancer of the anterior half of the tongue, floor of mouth, cheek, jaw, tonsil, palate and nasopharynx. With small portals, such as used, necessarily the dosage must be increased to compensate and may reach 8,000 r/o.

CARCINOMA OF BASE OF TONGUE

Case 3. A white male, aged 54, was admitted December 11, 1936, with pain in throat. About three weeks before admission patient states he first noticed a severe, steady pain in left side of throat which radiated to angle of left jaw. *Physical Examination*: The oral hygiene was not good. On the left base of tongue was seen an ulcerated, slightly infiltrated area 1.5 cm. in size with slightly elevated borders with infiltration reaching to the tonsillar pillar. No nodes were palpated. *Pathologic Examination*: This was made by Dr. Mathews, and revealed epidermoid carcinoma Grade II plus. Treatment in this case consisted of high voltage transcutaneous roentgen rays to the right and left base of tongue. The size of the fields were 7.5 cm. circular; daily doses of 219 r/o to each right and left tongue areas were administered, excepting Sundays, until each side had received 23 treatments, a total of 5,037 r/o each. Examination three months following last roentgen ray treatment showed the skin well healed, complete regression and healing of the carcinoma on the base of the tongue. On October 6, 1937, the patient returned for the usual follow-up examination. No evidence of recurrence in the base of the tongue or adjacent tissues was discovered. In the left neck, however, there was found in the deep cervical area a large node approximately 1.5 cm. in size, fairly well fixed in the deep structures. Aspiration biopsy was done and revealed metastatic epidermoid carcinoma. The treatment of this metastatic node consisted of external H. V. roentgen rays, using 5 cm. circular field and administering 219 r/o daily until 16 treatments, a total of 3,504 r/o. Immediately following the completion of roentgen ray treatments four 3 mg. platinum radium needles and four 2 mg. platinum radium needles were inserted transcutaneously into the deep node. The needles were left in situ 100 hours, until 2,000 mg. hours were administered.

DISCUSSION

Metastatic cancer in the cervical lymph nodes is usually more radioresistant than the original primary intra-oral tumor, excepting the transitional cell and lympho-epithelioma types which usually prove radiosensitive.

Duffy, at Memorial Hospital, found after an analysis of 983 cases of intra-oral cancer, without clinical evidence of metastasis in the cervical node, that 80 per cent of these patients had not developed metastasis at the end of three years. In our Clinic prophylactic neck dissection is not advised and prophylactic x-radiation to the neck nodes is regarded as wasted. Once carcinoma has spread to the neck nodes, secondary to squamous carcinoma, it can never be cured by any form of external radiation alone, whether it be radium packs or fractioned doses of high voltage roentgen rays. Cancer in neck nodes rapidly forms keratin, and undergoes degeneration or liquefaction. Small nodes may well be handled by exposure through a small incision in the skin and subcutaneous tissues and radon implants or radium element implants inserted into the node. Large nodes, in which apparently the cancer has already gone through the capsule, are first treated with high voltage roentgen rays, administering upward to 5,000 r/o, immediately following this, transcutaneous implantation into the mass of nodes is done with long platinum radium needles in a dosage sufficient to bring the total radiation up to not less than seven or ten erythema doses to the mass of nodes. In lympho-epithelioma or transitional cell carcinoma we feel that the nodes which are usually multiple may be adequately handled and completely sterilized with transcutaneous high voltage in sufficient dosage.

Dr. Sanderson invites all physicians in the Shreveport area to visit with us on Tuesday of each week, the meeting of our Clinic being held at 12:45 o'clock.

Harold G. F. Edwards, M. D., Reporter.

FACULTY CLUB
LOUISIANA STATE UNIVERSITY MEDICAL CENTER
NEW ORLEANS

The first meeting of the academic year was held Friday, October 29, with the President, Dr. Phillips J. Carter, presiding.

Dr. Robert H. Bayley, of the Department of Medicine, presented the following paper:

APPLICATION OF THE SOLID ANGLE AND THE MAGNETIC SHELL TO THE ANALYSIS OF THE PRECORDIAL LEAD

It was pointed out that the Einthoven method of analysis of the three standard leads, the use of the vector and the triangle, would not apply for the analysis of the precordial lead, a point repeatedly emphasized by F. N. Wilson, of Ann Arbor, Michigan. Reference was made to Wilson's work, offering irresistible experimental and theoretical proof that the excitation phenomena of cardiac muscle in situ may be defined as an imaginary uniform magnetic shell. Physical laws define the potential at any point in a homogenous volume conductor surrounding such a shell as proportional to the solid angle subtended at that point by the shell.

The shell and the angle were then used to predict the form and the meaning of the critical value of a normal precordial electrocardiogram taken by a lead in which the exploring electrode was presumably placed at a point on the precordium over the apex of the ventricular chambers. The theoretical curve was then compared with an actual curve taken under comparable circumstances.

The discussion was supplemented with lantern slide and plate projection.

DISCUSSION

Dr. James L. Gouaux emphasized the value of the precordial lead in facilitating diagnosis of anterior myocardial infarctions, as contrasted to its failure to aid in cases with posterior infarcts.

Dr. Phillips J. Carter, of the Department of Obstetrics, presented the following subject:

THE DIAGNOSIS OF PLACENTA PREVIA BY MEANS OF THE ROENTGEN RAY

Placenta previa is one of the most dangerous complications of pregnancy, and its diagnosis by means of the roentgen ray has been a great achievement. We are now able to ascertain its presence in many cases with a positiveness not possible when our whole reliance must be placed on symptoms and physical signs. Occasional cases have been diagnosed roentgenologically when the placenta contained calcium, but this is unusual. By the injection of radio-opaque substances intravenously, into the amniotic sac or into the bladder, the placenta may be visualized. Thorotrast intravenously was first used experimentally; however, its deposit in the placenta interferes with fetal nutrition. Later, strontium iodide was injected into the amniotic sac through the anterior abdominal wall, but this resulted in several fetal deaths. Uroselectan B. injected into the amniotic sac had a tendency to produce premature labor.

Instillation of sodium iodide into the bladder has been successful, the placenta producing a filling defect which pushes the presenting head a distance of two to four centimeters above the bladder wall. The central and partial types of placenta previa may be determined by the size and position of the filling defect. The use of sodium iodide has been followed by signs of bladder irritation. Skiodan (methiodal) may be used either intravenously or by injection into the bladder without harmful effects, and gives a film which is much clearer than one obtained by the other methods mentioned above. Illustrative roentgen ray films were presented.

DISCUSSION

The therapeutic implications of this mode of diagnosis were discussed by Dr. C. P. Cabibi; and possible sources of error, such as pressure from the sigmoid colon, by Dr. Amedee Granger and Dr. Walter Levy.

THE CAUSE OF DEATH FROM LUNG ABSCESS

Dr. James D. Rives, of the Department of Surgery, presented this paper which will appear in full elsewhere in the near future.

DISCUSSION

Dr. Louis A. Monte, in discussing the handling of lung abscesses from the medical standpoint, stressed the desirability of close cooperation between surgeon, bronchoscopist, and internist.

Geo. M. Decherd, Jr., M. D., Sec.-Treas.

HIGHLAND SANITARIUM

The Highland Sanitarium staff met on Thursday evening, October 21, 1937. After dinner the scientific program was held in the Clinic Building.

Dr. T. M. Oxford gave an interesting paper on treatment of fractures of the hip. It was gratifying to note the progress that has been made in this field in the past two years, especially in treating intracapsular fractures. Cases were presented in which closed reduction was made, either a flanged pin or small nails uniting the body with the head of the femur. This is all a closed operation, the hip joint not being entered. Dr. Oxford stated that the mortality and morbidity is greatly lessened by this method; the end results obtained are superior to previous treatment of this type fracture.

Dr. C. P. Rutledge reported on the recent meeting of the International Congress of Radiologists in Chicago. He gave a brief resumé of the therapy and roentgenologic technic that were discussed in this meeting.

Dr. D. H. Duncan reported on a meeting of the Southern Psychiatric Association which met recently in San Antonio. Especially interesting were his reports on the use of insulin shock therapy in schizophrenia, and narcosis in the treatment of excited phase of the manic states.

After a discussion of the deaths for the past month the meeting was adjourned.

E. D. Rowland, M. D., Sec.

NORTH LOUISIANA SANITARIUM STAFF MEETING

The staff meeting was called to order by the President on October 26, 1937, with about thirty members present. After the disposal of routine business attention was turned to the scientific program.

Dr. Lucas presented a patient with renal rickets who was admitted to the hospital for his terminal illness. The case had been extensiely studied in the larger clinics over the country. The child was a premature infant and was sick since it was eight days old, dying at the age of nine years. The case was presented because of its unusual occurrence and its striking bony deformities. The case was discussed by Dr. Stamper.

Dr. Stamper presented a case of hypoplastic kidney in a patient 22 years of age. The patient gave a history of pain in the right lumbar region since seven years of age. At the age of 15, the patient obtained relief of her symptoms by indulging in athletics. After her marriage at the age of 19, the symptoms recurred and during a pregnancy, she developed a persistent pyelitis. Roentgen ray examinations of the kidneys on the flat plate and pyelogram appeared normal. On cystoscopy, there was a mild hydronephrosis. Function apparently was good. At operation, a hypoplastic kidney was found and in freeing the kidney, the upper pole was found to be ischemic and very much like a suprarenal tumor. This deformity was found to be due to a constriction of the upper pole of the kidney. Patient's postoperative period was uneventful and completely devoid of symptoms complained of prior to operation.

H. M. Trifon, M. D., Sec.

HUTCHINSON MEMORIAL CLINIC

Scientific Session conducted by the Department of Medicine, Dr. John H. Musser presiding.

Spontaneous Pneumothorax: A Case Report (Dr. John H. Musser, Department of Medicine): This is a case of a man who, twenty-four hours prior to having extremely severe pain in his chest, had lifted a very heavy weight. That night he had what he described as a "funny feeling" in his chest which did not bother him very much but it continued to grow worse and finally in about twenty-four hours was extremely severe. The physical examination disclosed a pneumothorax which was confirmed by roentgen ray.

Pneumothorax is classically considered to be abrupt in onset and in practically all instances to be tuberculous in origin. It should not be forgotten, however, that the statistics as to the frequency of natural pneumothorax were compiled before the general use of the roentgen ray in the diagnosis of pulmonary conditions and that the condition was often overlooked except in patients who were treated for tuberculosis. I do not think that 90 per cent of all cases of pneumothorax are of tuberculous origin nor do I think 95 per cent of sudden onset with dramatic symptoms. On the contrary I have followed over a long period a goodly number of individuals who have had pneumothorax once or several times and tuberculosis was not present nor has it developed. Likewise I think that the statistics of Pepper, which show that in 23 per cent of cases the onset was insidious, represent the true incidence of the way the disease started.

Diagnostic Cardiac Problem: A Case Report. (Dr. William A. Sodeman, Department of Medicine): This patient, B. D., aged 45, considered herself in good health until one year ago when she began to experience breathlessness and palpitation. Nervousness and apprehension developed, and a tremor became evident. Edema of the feet made its appearance. She perspired more this summer than ever before. Loss of weight was noted and has reached 35 pounds. Past history was unrelated except for growing pains which were experienced as a child.

Physical examination disclosed a patient much as you see her here. The thyroid gland was smooth, symmetrically enlarged, with a single nodule in one lobe. Joffroy's sign was positive. There was no exophthalmos. The blood pressure was 140/90. The neck veins were distended and the heart enlarged. A systolic murmur was heard over the pulmonic area and mitral area. The heart was hyperactive. The rate varied from 85 to 116. Evidence of pitting edema was present. The skin was smooth and of fine texture. The basal metabolic rate was reported at 47 per cent and repeated at 43 per cent. The electrocardiogram disclosed definite evidence of myocardial disease. This patient displayed tremor and tumor. Tachycardia was inconstant and exophthalmos absent, two facts which threw doubt on the diagnosis of toxic goiter. The obvious clinical evidence of

hypermetabolism was confirmed by the basal metabolic rate which was repeated because of the frequent inaccuracy of the first determination. These high values appear to establish the diagnosis of toxic goiter.

Although thyrotoxicosis is given as one of the etiologic types of heart disease, the absence of anatomic evidence, the overwhelming occurrence of heart disease in thyrotoxicosis in the older age brackets and the increase in the occurrence of cardiac failure with the duration of hyperthyroidism has led to the prevalent opinion that thyrotoxicosis does not cause heart failure in the normal heart. However, when it supervenes in a patient whose heart is already impaired but compensated, the added strain may be sufficient to precipitate heart failure. In younger patients the underlying primary heart disease is usually rheumatic, in older persons either hypertensive or arteriosclerotic. It may be syphilitic. In any case it may be subclinical.

We were, therefore, not content with the diagnosis of thyrotoxic heart disease. The history of growing pains, the systolic mitral and pulmonic murmur, accentuation of M_1 and P_2 strongly suggested rheumatic heart disease. Several members of the staff have heard a diastolic mitral murmur. Roentgen ray examination disclosed a prominent pulsation in the region of the pulmonary conus. The heart in thyrotoxicosis, however, is notorious for its similarity to the rheumatic picture. Systolic and even diastolic murmurs and thrills have been found, as has been the dilated pulmonary conus in thyrotoxic patients with normal hearts at postmortem. The rheumatic diagnosis is, therefore, inconclusive. Hypertensive heart disease is ruled out by the blood pressure. The presence of syphilis could not be established. While the clinical diagnosis of arteriosclerotic heart disease in a picture such as this would rest largely on exclusion of other types, the electrocardiographic changes favor this diagnosis. In summary, we had a patient with possible rheumatic or arteriosclerotic heart disease, presumably precipitated into mild congestive failure by hyperthyroidism.

Any procedure which could differentiate hyperthyroidism from the elevated metabolism of congestive heart failure and the thyrocardiac findings from rheumatic heart disease would be helpful. We had such a procedure in the administration of iodine, which reduces the metabolism in thyrotoxicosis and tends to make the cardiac findings of thyrotoxicosis alone disappear. Following the work of Means, we have started the administration of iodine in this patient to settle these points.

Pernicious Anemia: A Case Report. (Dr. G. F. Ellinger, Department of Medicine): This patient came to the clinic about six months ago. He stated that he had known he had pernicious anemia since 1927. However, he had taken only a minimal amount of treatment and at the time we first saw him he presented the textbook symptoms and signs of pernicious anemia with subacute combined degeneration of the cord.

The features of this man's illness which I wish to discuss are the red blood count, mean corpuscular volume and reticulocyte determinations done at frequent intervals throughout his treatment.

It is characteristic of the anemia of pernicious anemia that the mean corpuscular volume is increased, that is, the blood shows a macrocytic anemia. As the disease process improves under treatment, the mean corpuscular volume comes down to normal. At the start of treatment in this patient, the mean corpuscular volume was 197.6 cu. microns, reticulocytes 6.4 per cent, red blood cells 1,240,000. He received 10 c.c. of Lilly's concentrated liver extract every two to four days, a total of 130 c.c. over a period of seven and a half weeks. At the end of this time his red blood cells had increased to 4,500,000 and his mean corpuscular volume had dropped to 106.8.

I am showing the results of three other patients, two with pernicious anemia, one with sprue, all similarly treated.

As you see, in this patient, the mean corpuscular volume started at 166 per cent of normal, the red blood count at 65 per cent of normal. Under treatment at the end of about three weeks, you can see these values coming within normal limits.

Patient two started with 52 per cent of the normal red blood count, about 130 per cent the normal mean corpuscular volume and at 26 days, when she deserted, her values were definitely coming toward normal.

Patient three with a red blood count of 900,000 (18 per cent of normal) with a 0.6 reticulocytes and a mean corpuscular volume of 102.8 (120 per cent of normal). On the fourth day, after a 20 c.c. dose of liver, the mean corpuscular volume jumped to 146.6 with a reticulocyte count of 42.4. At the end of one month's treatment, she was discharged with a red blood count of 4,740,000, a mean corpuscular volume of 89.3 and reticulocytes of 1 per cent, all values coming back within normal range.

The interesting thing here is the temporary increase in mean corpuscular volume occurring on the fourth day after treatment was started. This occurs at the time of the peak of the reticulocyte increase. Dr. Wintrobe had demonstrated this change in many cases also.

It has been shown that the diameter of the reticulocyte in any blood specimen tends to be greater than that of the normal red blood count in that specimen. This increased mean corpuscular volume, corresponding to the increased reticulocyte count seems to indicate that the mean

corpuscular volume of reticulocytes is also greater than that of the normal and, up to a certain point, greater than that of the macrocytic pernicious anemia cell.

Apparently this increased mean corpuscular volume is directly related to the height of the reticulocyte peak reached and the initial mean corpuscular volume of the cells. Given a sufficient per cent of reticulocytes, in a blood with macrocytosis, if the macrocytes are not already the biggest cell nature can produce in that individual, one will find this temporary increase in mean corpuscular volume.

Congenital Hemolytic Jaundice: Two Case Reports. (Dr. G. E. Burch, Jr., Department of Medicine:) E. B., white male, aged 15 years, was admitted to the Clinic on June 14, 1937, complaining of weakness in the ankles and calves of his legs. This weakness occurs suddenly and at irregular intervals. There are no associated pain, vertigo, headaches or other related symptoms. For the past six years, however, he has been known to have a large spleen, intermittent attacks of jaundice and a tendency to prolonged bleeding. He first learned of his illness when his mother was found to have hemolytic jaundice. For the four and a half years immediately following his learning of the existence of his disease he received roentgenologic treatment with radium to his spleen, but without any beneficial effects.

The remaining portion of his history is irrelevant except that his mother's father had jaundice and a large spleen. This condition was diagnosed as hemolytic jaundice. His mother has two apparently unaffected sisters. The entire physical examination failed to present any significant findings, except for an icteric tinge to the patient's conjunctivae and skin, pallor of the mucous membranes, and a smooth diffusely and moderately enlarged spleen. The urine, stool and Fishberg concentration tests were normal. The Wassermann was negative. The blood picture was as follows: Hemoglobin 9.75 gm. (57 per cent Newcomer), red blood cells 3,510,000, white blood cells 7,750, small monos 50, large monos 2, neutrophiles 42, eosinophiles 5, basophiles 1; strippling—marked, anisocytosis—moderate, poikilocytosis — moderate, polychromatophilia—moderate, platelets 121,380; hematocrit 30.7, mean corpuscular volume 87.5 (4 months previously the mean corpuscular volume was 70) mean corpuscular hemoglobin 27.8, mean corpuscular hemoglobin concentration 31.9, reticulocytes 10.5%; cell diameter 6.07 microns, cell thickness 3.1 microns: Relation of thickness to diameter 1:2. Fragility began at 0.48, complete at 0.30, icterus index 100, coagulation time three and a falf minutes, bleeding time four minutes.

On admission the patient was given ferric ammonium citrate (crystals) 2 gm. three times a day. It is interesting to note the change in volume of the erythrocytes following the use of iron. The patient apparently was also suffering from iron want when he was first seen. The correction of this deficiency resulted in a revision of the mean corpuscular volume to that which is expected in uncomplicated congenital hemolytic jaundice.

Case 2. Mrs. L. B., aged 37, the mother of E. B. (Case 1), admitted June 14, 1937, has suffered from anemia, jaundice and weakness since a child. She did not know that she had a splenomegaly and was suffering from congenital hemolytic jaundice until six years ago. Her health has varied little until the birth of her son when she had three convulsive seizures. The exact nature of these is unknown. At present she feels well except for an ulcer on the posterior aspect of her left heel. Her father was said to have had hemolytic jaundice. The patient does not know whether her grandparents or great grand-parents were similarly afflicted.

The physical examination was found to be essentially normal except for jaundice, pallor of the mucous membranes and a slightly enlarged spleen. The Wassermann and urine were normal. Fishberg concentration was 1.016, 1.015 and 1,014. Blood picture: Hemoglobin 55 per cent (Dare) or 8.8 gm., red blood cells 3,000,000, white blood cells 7,000; anisocytosis—moderate, poikilocytosis—moderate, small monos 25, large monos 2, neutrophiles 72, eosinophiles 1; coagulation time three and a half minutes, bleeding time four minutes. Icterus index 50; fragility—hemolysis began at 0.48 and ended at 0.30. Hematocrit 28.3 per cent, mean corpuscular volume 94.5, mean corpuscular hemoglobin 29.4, mean corpuscular blood concentration 31.1. We were unable to have the patient return for more complete studies.

The characteristics of congenital hemolytic jaundice are as follows:

A. Clinically:

1. Anemia.
2. Non-obstructive jaundice.
3. Splenomegaly.

B. The Erythrocyte.

1. Decrease in diameter.
2. Increase in thickness.
3. "Spherocytosis".
4. Normal or increased volume.
5. Decreased resistance to hypotonic NaCl solution.
6. Normal concentration of hemoglobin.
7. Increase in reticulocytes.

The "spherocytosis", usually 10 to 25 per cent, is said to be as pathognomonic of the disease as sickled erythrocytes are of sickle cell anemia. The hemolytic tendency found in this disease is directly related to the degree of spherocytosis. The clinical syndrome, anemia, hemolytic jaundice, and

splenomegaly, is the result of the removal of these abnormal spherocytes from the circulation by the spleen. The treatment is splenectomy. This does not remove the primary disturbance. Cases followed after splenectomy continue to have as high as 16 per cent spherocytes. This has proved to be true as long as 16 years after removal of the spleen. Removal of the spleen does, however, result in a disappearance of the clinical manifestations of hemolytic jaundice.

A Modern Treatment for Peptic Ulcer with Hemorrhage: A Case Report. (Dr. C. R. Jones, Jr. Department of Medicine): The use of liquid colloidal aluminum hydroxide in the treatment of peptic ulcer has been on a sound basis for several years. The administration of this drug by means of a continuous intragastric drip is a more recent development, but the use of the continuous intragastric drip of colloidal aluminum hydroxide as a means of arresting massive gastroduodenulcerous hemorrhage is a very recent advance; in fact it is my purpose to show tonight the first patient to be treated by that method recorded in the literature.

Briefly, this is his story. He was 33 years old, and for a year he had had several periods during which he suffered from epigastric pain relieved by food. Five days previous to admission he had started to become weak and pale and shortly began to pass tar colored stools. He rapidly became so weak that he was unable to stand up and was brought to the hospital in a most depleted state. Shortly after admission there was expelled a large amount of coffee ground vomitus. The upper portion of his abdomen was generally tender but not rigid. He was treated for shock and given a transfusion of 450 c.c. of citrated blood on the day of admission and 250 c.c. four days later. Aluminum hydroxide was started, 4 c.c. every third hour, on October 23. He received about eight such doses in the first 24 hours of aluminum hydroxide treatment and was then given the medication by a continuous intragastic drip which was continued day and night for seven days. In this time he received between 250 and 275 c.c. daily of colloidal aluminum hydroxide diluted so as to make about a 25 per cent solution. Several aspirations through the nasal tube showed from zero to 5° of free hydrochloric, but after the first day no blood was detected. He became rather constipated but as he was getting very little food by mouth no effort was made to cause a bowel movement. After five days of the continuous drip he had a movement consisting largely of the tar colored material, following which his stools remained negative for occult blood. He was up and around in 12 days after admission. The red count was 1,775,000 on the day of admission and 19 days later on discharge to the out-patient department, it was 3,505,000. On November 30, his red cell count was 5,325,000.

All methods that are now in general use for the treatment of massive hemorrhage, such as this patient had, have the drawback of a quite considerable mortality rate. The feeding method of Meulengracht showed great improvement over the older methods and it was reasoned that the utilization of the acid and pepsin prevented the clot from being digested. Be that as it may, the situation here was that we had a patient sick unto death from hemorrhage and a method of keeping the free hydrochloric acid continuously neutralized by a fluid that had also a beneficial astringent property. The drug has, as far as is known, no undesirable properties; it is a neutral, non-absorbable, non-toxic, astringent antacid.

Woldman recently reported 21 consecutive severe cases of this nature, all of whom recovered following the exhibition of this drug by this method.

It is too early to say what will be the eventual status of this method of treatment, but it bids fair to be the method of choice.

Reduction Diets in Obesity: A Case Report (Dr. W. H. Gillentine, Department of Medicine): L. C. G., white female, aged 18, was admitted to the Clinic on February 15, 1937, complaining of obesity. Developmental History: The patient weighed six pounds at birth. At the age of six months a suppurative cervical adenitis was incised and drained. The lower central incisors were cut during the fourth and fifth months. Menstruation began at the age of twelve and a half years, is regular, scanty and lasts for four days. The patient from childhood on has been overweight. Family History: The patient's mother, maternal grandmother and great-grandmother and paternal second cousin have had diabetes. The patient's sister, mother, father, two brothers are all obese, the average weight being over 200 pounds. Physical Examination. The patient is 5 feet 6¼ inches tall, weighs 261 pounds. The blood pressure is 108/70. The patient's obesity is distributed principally around the breasts, sides of the body, hips and thighs, especially as a trochanteric fat pad, and also in the proximal joints of the extremities. A posterior cervical fat pad is found. The breasts contain normal glandular tissue. The lungs, heart and abdomen are negative. The panniculus adiposus hangs as an apron in front of the pubis when the patient is in the erect position. The external genitalia are small and the uterus apparently smaller than normal as determined by an unsatisfactory rectal examination. The reflexes are normal but sluggish.

Laboratory: Blood cytology was normal. Sugar was found in the urine on February 18 and 19. At this time the basal metabolic rate was plus 3 per cent. Roentgen rays of the pituitary revealed a

sella turcica larger than normal, but without evidence of bony erosion. A one hour two-dose sugar tolerance test was done and showed no decrease in sugar tolerance. Body measurements were taken. The patient's obesity was regarded as being of gonadal distribution, secondary to pituitary hypofunction because of the fat distribution, the long lower body measurement, and the decreased basal metabolic rate. No studies of estrin or gonadotropic excretion were done to confirm the diagnosis. The appearance of sugar in the urine was regarded as due to a decrease of pancreaticotropic hormone of the pituitary or to a decreased renal threshold for glucose which sometimes accompanies gonadal obesity, or possibly to the familial tendency (endocrine) for diabetes. The patient's basal metabolic rate was plus 11 per cent on April 8, 1937, two weeks after beginning the administration of thyroid, one grain three times a day. At this time the patient was given a diet containing 1375 calories, 66 grams of carbohydrate, 66 grams of protein and 96 grams of fat. In addition, the patient had between June 11, 1937 and August 23, 1937, 1000 rat units of anterior pituitary-like hormone, 500 rat units of the maturity factor, 1500 rat units of gynantrin. At the end of this time her basal metabolic rate had dropped in spite of the thyroid to —11 per cent. Between March 23, 1937 and October 19, 1937, the patient lost a total of 61 pounds, the reduction being slow to avoid skin sag. As a result the following decreases in circumferential measurements were noted: Bust 5¾ inches, waist 4½ inches, anterior superior spine 10¾ inches, trochanters 5¼ inches, thighs 1 inch, legs 1 inch, arms and forearms ½ inch. This distribution of weight loss is regarded as being significant in that the replacement therapy has apparently reversed the peculiar distribution of obesity associated with this glandular deficiency.

Essential Hypertension in a Young Adult: A Case Report (Dr. Peter Everett, Department of Medicine): This patient, Y. S., white female, aged 25, was seen for the first time in the Clinic in February, 1937. Her history was that on December 17, 1935, she had an apopletic stroke (the same day her father had one) and remained unconscious for three days. During the first five hours she had five convulsions. She was seen by a physician who attributed the condition to "nervousness and kidney trouble," telling the patient the blood pressure was 270 mm. Upon regaining consciousness she had diplopia for a week.

For two years she had been treated with vasodilators and sedatives without any beneficial effect upon the blood pressure. The systolic pressure has always been above 200 mm. mercury and the diastolic always above 100 mm. mercury. The thyroid was irradiated because the physician thought the hypertension was associated with thyroid disease. About this time economic conditions became such that she had to come to the clinic for further care.

On admission the blood pressure was 208/104. The urine showed a faint trace of albumin and a fixation of specific gravity between 1.015 and 1.018; at no time were there casts or red blood cells. There was no cardiac enlargement (roentgen ray); the basal metabolism, blood chemistry and P. S. P. kidney function tests were all within normal limits. A mild secondary anemia was found. The one consistent finding throughout our observation was an increase in the amount of sclerosis of the retinal vessels for an individual her age. During our period of observation, at which time sedatives and vasodilators were again tried, her only complaint was of mildly severe headaches and a flushing of the face.

After two months she was sent to the Department of Surgery for an opinion about surgical intervention. It was thought that a sympathectomy would help so she was sent to Touro Infirmary in June, 1937. However, the visiting internist there learned that she had had what he thought was an acute nephritis at the age of eight years, and with the finding of a soft low-pitched systolic mitral murmur, which he considered organic, he assumed the patient had a mitral stenosis and refused to have her operated upon. She was observed for a few days and then discharged.

Some three months later we saw her again, and she stated that the headaches were increasing. We rechecked everything and our findings were approximately those of the first visit. We heard the systolic murmur but considered it functional, as we had in February, 1937. We again considered sending her to the Surgical Clinic but made no consultation appointment until we presented her to the staff tonight.

She has been presented to the staff for an opinion regarding surgery in her case. Would surgery benefit her now in the presence of persistent faint traces of albumin and a moderate fixation of specific gravity, with the diastolic pressure always above 100?

Congenital Megacolon: A Case Report (Dr. H. H. Russell, Department of Medicine): This patient, L. B., colored male, aged 16, was admitted to the clinic on March 21, 1934. His chief complaint was chronic constipation. Present illness began a few days after birth when the grandmother noted that patient's bowels had not moved. She consulted a physician who advised mild laxatives, rectal flushes and suppositories, which were used with very little results. However, grandmother continued to use various laxatives and several enemas daily. This regime was kept up daily for a few weeks when it was decided to omit all treatment for constipation to see what would happen. The patient

went two or three days without any elimination, however nourished well and appeared normal. The grandmother would get busy with laxatives and ten to fifteen enemas daily until bowels moved well. Then patient would be allowed to go several days when some treatment was instituted. Patient seemed to be all right even though he would pass several days without any defecation, and from the time he was about two years of age he would be allowed to go about ten days to two weeks, at which time a repetition of laxatives and enemas would be used. This rhythm of care was used apparently successfully until patient was five years of age. At this time, he had gone about two weeks without defecation when he developed high fever, headache, vomiting, abdominal pains and marked abdominal distention. He was admitted to Charity Hospital and a diagnosis of intestinal obstruction was made, the treatment consisting of high enemas for two or three days. He was discharged in five days apparently all right.

From that time until admission to our clinic, patient would empty his colon at intervals from two to six weeks. After several weeks would pass without a bowel movement, he would have a marked distention of the abdomen, anorexia and malaise at times; when he allowed himself to go four to six weeks without emptying his colon, manual assistance was necessary to remove bowel mass. His grandmother (midwife) stated, "It was just like delivering a big baby." The bowel mass was estimated at three inches in diameter and ten inches in length. After the evacuation, patient would frequently have a syncopal attack for several minutes.

Past and family histories were essentially negative. Physical examination was essentially negative except for carious teeth and abdominal findings.

After defecation, the abdomen would be flat but on palpation the transverse and descending colon could be outlined. Before defecation, the abdomen would be markedly distended and the colon could be outlined on inspection, as well as palpation, being about six times the normal size. Laboratory findings on urine, blood, feces, metabolism and gastric acidity were essentially negative. Barium enema roentgenograms showed transverse and descending colon to be markedly distended, with a report of congenital megacolon.

Patient was advised to take one ounce of mineral oil night and morning and attempt to have a bowel movement daily. After one week, and with no other treatment, patient began to have one or two normal defecations daily. Barium enema roentgenogram has showed a progressive diminution in size of and an increased amount of tone in the colon. The last roentgenogram, in March, 1937, showed the colon to be about one-third as large as that on first roentgenogram (April, 1934).

When patient was last observed in Clinic, he had gained thirty pounds in weight, looked fine and was having daily or at least every other day defecations with the continued use of mineral oil.

This patient was referred to the Surgical Clinic several times for an opinion concerning surgery of the sympathetics; however, he would not consent to any operation, saying, "My bowels are moving all right."

HOTEL DIEU

The regular monthly meeting of the Staff of Hotel Dieu was held in the Nurses' Lecture Room of Hotel Dieu on Monday, October 18, 1937 at 8:00 p. m.

The meeting was called to order by the president, Dr. H. E. Bernadas, and with the secretary, Dr. J. A. LaNasa, at the desk.

The scientific program consisted of the following papers:

1. A Review of 115 Cases of Intestinal Obstruction from Hotel Dieu Records, 1932-1937 by Dr. A. L. Levin and Dr. M. Shushan. This discussed by Drs. Danna, Fortier, and Salatich.

2. Extra-Cerebral Causes of Epilepsy by Dr. H. R. Unsworth. Discussion was opened by Dr. Fenno.

A recess of one minute was ordered by the chairman after which the meeting resolved into executive session. The meeting was then adjourned.

MERCY HOSPITAL

Monthly meeting of the Mercy Hospital Staff was held on November 3, 1937, Dr. J. J. Irwin presiding.

The scientific program consisted of an interesting talk and lantern slide demonstration by Dr. Charles Bahn on "Ophthalmic Endocrinology". This was well received by the Staff and aroused considerable favorable discussion.

Hospital analysis and mortality investigation were taken up. The chief feature of the latter was a patient with carcinoma of lungs, liver, left ovary and uterus who had only recently become ill and felt as though rest in the hospital plus a thorough check up would improve her poor feeling. She showed a decided tendency to lose ground steadily and despite care given, died in a relatively short time. The case was rather interesting from the standpoint of so many positive findings not affecting the patient's well being and then such a rapid termination without the onset of any symptoms.

H. Ashton Thomas, M. D., Sec.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

CALENDAR

December 1. Clinicopathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
December 1. Hutchinson Memorial Clinic Staff, 8 p. m.
December 1. Mercy Hospital Staff, 8 p. m.
December 6. Board of Directors, Orleans Parish Medical Society 7:30 p. m.
December 6. Chaille Memorial Oration, 8 p. m. Dr. Walter Timme of New York.
December 6. Pathologic Conference, Hotel Dieu, 8:15 p. m.
December 8. Touro Infirmary Staff, 8 p. m.
December 10. French Hospital Staff, 8 p. m.
December 11. ELECTION OF OFFICERS, 1938. Balloting between 10:00 a. m. and 12 noon; 2 and 5 p. m.; and 7 and 8:30 p. m.
December 11. ANNUAL DINNER, ORLEANS PARISH MEDICAL SOCIETY, 7:30 p. m. New Orleans Athletic Club.
December 15. Clinicopathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
December 15. Charity Hospital Surgical Staff, 8 p. m.
December 16. Eye, Ear, Nose and Throat Club, 8 p. m.
December 17. I. C. R. R. Hospital Staff, 12 noon.
December 20. Hotel Dieu Staff, 8 p. m.
December 21. Charity Hospital Medical Staff, 8 p. m.
December 22. Clinicopathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
December 28. Baptist Hospital Staff, 8 p. m.
December 29. Clinicopathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
December 31. Faculty Club, L. S. U. Medical Center.

TO THE PHYSICIANS OF THE ORLEANS PARISH MEDICAL SOCIETY

Dear Doctors:

The Southern Medical Association, which is the second largest medical society in America, is an association of which every southern doctor and particularly every member of the Orleans Parish Medical Society, should be a member. It will hold its thirty-first annual meeting in New Orleans, November 30 to December 3 inclusive.

This association is a non-legislative body which devotes its activities to progressive medicine. Its programs are unsurpassed in scientific excellence by any medical organization. This year's program will consist of several clinical sessions and sections devoted to the various specialties of medicine, and scientific and technical exhibits.

Membership in this organization also includes the Southern Medical Journal, one of the outstanding monthly publications. The membership fee is $4.00 annually.

As chairman of the membership committee, let me urge you, who are not already members, to join our ranks and become part of America's second largest medical society, entirely represented by southern physicians.

Sincerely yours,

Wm. A. Wagner, M. D., Chairman,
Membership Committee.

ANNUAL DINNER

It is planned this year to revive an old custom discontinued because of the depression, that of making the election meeting a social affair in the form of an informal dinner. In keeping with this idea, plans are being made for the annual dinner of the Society to be held Saturday, December 11 at 7:30 p. m. at the New Orleans Athletic Club. As this dinner will serve us as the election meeting the returns of the election will be announced at this time. It is felt that this occasion should constitute an informal get-together and all members of the Society are urged to participate. The cost will be $1.50 per person, and tickets may be secured at the office of the Secretary of the Society or from the committee member on each hospital staff. This announcement is being made sufficiently far in advance so that everyone will have time to put aside other activities and prevent anything from interfering with his attendance at this dinner. It is hoped to follow the precedent already established at the meetings of this year in the matter of attendance to set a record on this occasion. Let's have the largest number of members ever present at an annual dinner!

During the month of November, the Society held two regular meetings, November 8 and November 22. The following program was presented at the meeting held November 8:

SYMPOSIUM ON SYPHILIS

1. The Genito-Urinary Aspects of Syphilis: Dr. John G. Menville.
2. The Medical Aspects of Syphilis: Dr. Edgar Hull.
3. Cutaneous Syphilis: Dr. James K. Howles.
4. Some Pathological Lesions Initiated by Syphilis: Dr. John R. Schenken.
5. Public Health Aspects of Syphilis: Dr. John A. Trautman (by invitation).

In conjunction with the Tuberculosis Institute sponsored by the Tuberculosis Committee of New Orleans, the Tuberculosis and Public Health As-

sociation of Louisiana, and the Orleans Parish Medical Society, the following program was presented at the meeting held November 22:

Modern Methods of Treatment of Tuberculosis:

Dr. Fred H. Heise, of Saranac Lake, New York.

Notes on the Diagnosis of Tuberculosis:

Dr. John B. Hawes, of Boston.

At this meeting the following delegates and alternates to the Louisiana State Medical Society were elected for a term of two years with the exception of the President who serves only during his term of office:

DELEGATES

Dr. Shirley C. Lyons (President)

Dr. E. L. Leckert	Dr. M. T. Van Studdiford
Dr. H. B. Alsobrook	Dr. Val H. Fuchs
Dr. Emmett Irwin	Dr. Frank Chetta
Dr. James T. Nix	Dr. Jerome E. Landry

Dr. L. C. Chamberlain

ALTERNATES

Dr. Sidney M. Copland	Dr. N. J. Tessitore
Dr. Theo. F. Kirn	Dr. Edward L. King
Dr. J. F. Sicomo	Dr. H. G. Butker
Dr. E. J. Richard	Dr. Edw. F. Bacon
Dr. J. P. Palermo	Dr. Roy W. Wright

Dr. Gilbert C. Anderson

The following doctors were nominated for Officers for 1938. Election of these officers will be held Saturday, December 11. Balloting shall take place between 10 a. m. and 12 noon; 2 and 5 p. m., and 7 and 8:30 p. m. Only members in good standing are eligible to vote. PLEASE PAY YOUR DUES NOW.

NOMINATIONS

PRESIDENT—Dr. Shirley C. Lyons.
Endorsed by Drs. Roy B. Harrison, Urban Maes, and Leon J. Menville.

FIRST VICE-PRESIDENT—Dr. Edgar Burns.
Endorsed by Drs. L. C. Chamberlain, B. J. DeLaureal, F. L. Fenno, and Shirley C. Lyons.

SECOND VICE-PRES.—Dr. H. Ashton Thomas.
Endorsed by Drs. Val H. Fuchs and R. J. Mailhes.

THIRD VICE-PRESIDENT—Dr. Lucien A. Fortier.
Endorsed by Drs. Val H. Fuchs, J. E. Landry, and E. B. Vickery.

SECRETARY—Dr. Gilbert C. Anderson.
Endorsed by Drs. Manuel Gardberg, R. H. Fisher, Wm. H. Gillentine, Chas. Holbrook, and Emmett Irwin.

TREASURER—Dr. Edwin H. Lawson.
Endorsed by Drs. Waldemar R. Metz and H. V. Sims.

LIBRARIAN—Dr. Donovan C. Browne.
Endorsed by Drs. C. L. Peacock, R. F. Sharp, and J W. Tedder.

ADDITIONAL MEMBERS BOARD OF DIRECTORS

Dr. Isidore Cohn—Endorsed by Drs. E. E. Allgeyer, Max M. Green, and J. T. Nix.

Dr. George Hauser—Endorsed by Drs. O. W. Bethea, Aldea Maher, and Waldemar R. Metz.

Dr. James T. Nix—Endorsed by Drs. Emmett Irwin and Marcy J. Lyons.

NEWS ITEMS

Dr. L. L. Cazenavette, Superintendent of the City Hospital for Mental Diseases, attended and participated in the program of the Southern Psychiatric Association, held recently in San Antonio, Texas.

Dr. Alton Ochsner, Professor of Surgery, and Dr. Charles F. Craig, Professor of Tropical Medicine, Tulane University, were guest speakers at the Gulf Coast Clinical Society's annual meeting which was held in Biloxi, Mississippi, November 3 and 4.

Dr. Thomas Parran, Surgeon General, United States Public Health Service, was a visitor to New Orleans, October 29 and 30. While in the City, Dr. Parran visited several hospitals and medical schools as well as conferring with the several organizations in New Orleans dealing with public health and welfare.

The following doctors attended the meeting of the American Academy of Ophthalmology and Otolaryngology held in Chicago, October 11-15: Drs. Charles A. Bahn, C. L. Brown, W. R. Buffington, William B. Clark, Val H. Fuchs, John B. Gooch, J. Raymond Hume, Mercer G. Lynch, Neal Owens, George J. Taquino, William A. Wagner, E. Garland Walls, David Womack, and C. S. Wood.

The ex-internes of the Eye, Ear, Nose and Throat Hospital had a luncheon during the meeting.

Dr. Marcy Lyons attended the meeting of the International Medical Assembly of the Interstate Postgraduate Association of North America in St. Louis, October 18-22.

Dr. John H. Musser addressed the Pulaski County Medical Society on the occasion of the annual banquet tendered by the Society to the President and Past-Presidents of the Arkansas State Medical Society at Little Rock, Arkansas, November 8.

Colonel Charles F. Craig, Director, Department of Tropical Medicine, Tulane Medical School, has been appointed to membership on the Sub-committee of Insects and Diseases of the New York

World's Fair in 1939. Colonel Craig has also recently accepted the invitation to serve as Honorary Chairman of the Section on Tropical Medicine of the Pan American Medical Association.

Dr. T. A. Watters was recently elected to membership in the Central Neuro-Psychiatric Society, which held its convention in Chicago. Dr. Watters also addressed the Louisiana Mental Hygiene Society of Louisiana State University, on "Moods."

Dr. A. F. Hebert has been appointed Chairman of Surgeons at the New Orleans Hospital and Dispensary for Women and Children, to succeed the late Dr. Russell E. Stone.

Dr. Philip Boudreaux has been appointed instructor in anatomy in the Loyola School of Dentistry.

Dr. Curtis H. Tyrone was chosen to represent the School of Medicine of Tulane University, on the executive committee of the Tulane Alumnae Association.

Dr. Lucien A. Ledoux was recently appointed an Associate Professor of Gynecology at Louisiana State University Graduate School of Medicine.

Dr. Howard R. Mahorner and Dr. Warren Hebert attended the Jefferson County Medical Society meeting in Beaumont, Texas, on November 8. Dr. Mahorner addressed the meeting on "Clinical Aspects of Goiter in the Deep South," and Dr. Warren Hebert spoke on, "Does Radium have a Place in the Treatment of Carcinoma of the Rectum."

Dr. John T. Sanders and Dr. Upton Giles attended the Escambia County Medical Society, Inc., Pensacola, Florida, on November 9. Dr. Sanders addressed the meeting on, "Endocervicitis, a Common Focus of Infection: The Use of the Electro-Surgical Unit as a Means of Eradication." Dr. Upton Giles spoke on "Artificial Fever versus Sulfanilamide in the Treatment of Gonorrheal Arthritis."

The following doctors were elected to membership:

Active: Drs. John H. Connell, Eugene H. Countiss, Dean H. Echols, Bela Halpert, Anthony J. Italiano, Barrett Kennedy, Samuel A. Romano, John R. Schenken, Carroll Smithers, Marx D. Sterbcow, and Edwin W. Tucker.

Associate: Dr. Joseph D. Landry.

Interne: Drs. Rafael T. Armstrong, Edward M. Aronovich, DeWitt Claunch, John H. Dellinger, Attilio V. Filizola, Daniel L. Forte, Samuel H. Haigler, Alfred Y. Hew, Roger S. Knapp, Ildefonso R. Lugo, Wilbur E. Meneray, James L. Pickens, Ernest H. Planck, Jr., David V. Rodgers, Alfredo G. Silva, John J. Stone, and James B. Stubbs.

A meeting of the Faculty Club of Louisiana State University Medical Center took place on Friday, November 26, 1937, 4th floor, L. S. U. Building. The following papers were presented:

1. Liver Function After Gum Acacia Administration: Dr. W. K. Hall. Discussion opened by Dr. W. M. McCord.

2. Modern Treatment of Syphilis: Dr. James W. Tedder. Discussion opened by Dr. Robert Sharp.

3. Parasitic Infection of the Appendix: Dr. Rigney D'Aunoy, Dr. J. R. Schenken, Dr. Emma S. Moss. Discussion opened by Dr. J. C. Swartzwelder.

TREASURER'S REPORT

Actual Book Balance 9/30/37	$2,891.02
October Credits	254.89
Total Credits	3,145.91
October Expenditures	542.81
Actual Book Balance 10/28/37	$2,603.10

LIBRARIAN'S REPORT

During October, 71 volumes were added to the Library. Of these 44 were received by gift, 1 by purchase and 26 from the New Orleans Medical and Surgical Journal. Notation of new titles of recent date is given below.

The Library has loaned to doctors during September, 935 books and journals, or almost two to each member of the Society. An additional 914 have been loaned to students for overnight use, making a total of 1894 for the month. These figures do not include the great use of books and journals within the Reading Rooms.

Members of the staff have collected material on the following subjects during October:

Value of a medical library.
Heredity in epilepsy.
Apnea.
History of cesarean section.
Anesthetic death.
Roentgenography in bone tumors.
Insulin in schizophrenia.
Syphilis and pregnancy.
Role of vitamins in sterility.
Charles Scott Sherrington.
Sacral anesthesia.

NEW BOOKS

A. M. A. Council on Pharmacy and Chemistry: Annual Report, 1936.

Southern Surgical Association Transactions, 1936.

Rockefeller Foundation International Health Division: Report, 1936.

Rockefeller Foundation Annual Report, 1936.

American Urological Association—Southeastern Branch—Transactions, 1936.

American Urological Association—North Central Branch—Transactions, 1936.

Dryerre, Henry: Aids to Physiology, 1937.

Sutton, D. C.: Physical Diagnosis, 1937.

Miller, S. C. (ed.): Oral Diagnosis and Treatment Planning, 1936.

Hiscock, I. V. (ed.): Community Health Organizations, 1932.

Mills, H. A.: Sickness and Insurance, 1937.

Savill, T. D.: System of Clinical Medicine, 1936.

Roesler, Hugo: Clinical Roentgenology of the Cardiovascular System, 1937.

Pittsburgh Diagnostic Clinic: Clinical Reviews, 1937.

Donaldson, S. D.: Roentgenologist in Court, 1937.

Krumbhaar, E. B.: Pathology, 1937.

Snow, John: Cholera, 1936.

MacKinney, L. C.: Early Medieval Medicine, 1937.

Gray, Sir H. M. W.: Colon as a Health Regulator, 1936.

Thacher, Thomas: Brief Rule to Guide the Common People of New England, 1937.

Morgan, John: Discourse upon the Institution of Medical Schools, 1937.

Welch, W. H.: Adaptation in Pathological Processes, 1937.

Thesing, Curt: Genealogy of Sex, 1934.

Weiss, Edward: Practical Talks on Kidney Diseases, 1937.

Davidoff, L. M.: Normal Encephalogram, 1937.

Ischlondsky, N. E.: Protoformotherapy in Treatment and Prevention, 1937.

Clark, LeMon: Emotional Adjustment in Marriage, 1937.

Harvard School of Public Health: Environment and Its Effect upon Man, 1937.

Maher, C. C.: Electrocardiography, 1937.

Hertzler, A. E.: Technic of Local Anesthesia, 1937.

Crossen, H. S.: Synopsis of Gynecology, 1937.

May, C. H.: Manual of Diseases of the Eye, 1937.

Brennemann, Joseph, (ed.): Index to Practice of Pediatrics, 1937.

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Gilbert C. Anderson, M. D.,
Secretary.

LOUISIANA STATE MEDICAL SOCIETY NEWS

A LETTER FROM THE PRESIDENT

To the members of the Louisiana State Medical Society:

The Southern Medical Association will hold its annual meeting in New Orleans, November 30-December 3, at which time the Orleans Parish Medical Society will be the hosts. It is an honor to have this great organization hold its meeting in our state, and in order to show our appreciation, I urge as many of you as possibly can to register at this meeting.

Your attention is also called to the fact that the New Orleans Graduate Assembly will hold its second annual meeting on March 7, 8, 9 and 10, 1938. The first Assembly, I am advised, was an unqualified success.

There is no good reason why the doctors of Louisiana should be forced to leave the state for graduate work. It is my studied opinion that the profession of New Orleans can and will provide as good a program as can be obtained anywhere. In order to put this Assembly on a firm and permanent basis, it will be necessary for the members of the State Society to lend their assistance and show their interest by attending the future meetings of the Assembly. I urge you, therefore, to bear these dates in mind and make your arrangements to attend.

C. M. Horton, M. D., President.

LECTURE COURSES IN PEDIATRICS

Lecture Courses in Pediatrics, sponsored by the Committee on Medical Education and the State Board of Health, have been organized and will be conducted within all Councilor Districts, exclusive of First and Second Districts.

The plan is to conduct three courses in each of the stipulated Councilor Districts, each course to consist of a daily lecture for five consecutive days. The content of the course has been worked out by a committee made up of Dr. Robt. A. Strong, Dr. Chas. J. Bloom and Dr. John Signorelli.

The program will be launched in the Seventh District; and Lake Charles, Opelousas and Crowley have been selected as centers. The program is as follows:

Lake Charles, December 6-10: Dr. Robt. A. Strong.

Opelousas, December 13-17: Dr. Roy E. dela Houssaye.

Crowley, January 10-14: Dr. Jack Strange.

The Committee on Arrangements for the Seventh

Councilor District is made up of Dr. Claude A. Martin, Dr. J. W. Faulk, Dr. L. J. Bienvenu and Dr. J. A. Crawford. All phyicians in Seventh District and vicinity are cordially invited and urged to attend.

Announcement of subsequent courses will appear as arrangements are completed.

SHREVEPORT AND FOURTH DISTRICT MEDICAL SOCIETIES

The joint meeting of the Shreveport Medical Society and the Fourth District Medical Society was held in Shreveport on October 5. Dr. S. A. Tatum, president of the district society, presided.

Dr. C. M. Horton, President of the Louisiana State Medical Society, was presented to the group.

The following officers were elected by the district society for the ensuing year:

President: Dr. J. A. Hendrick, Shreveport.

Vice-President: Dr. H. B. Wren, Shreveport.

Secretary: Dr. P. D. Abramson, Shreveport.

Delegate: Dr. S. A. Tatum, Homer.

Dr. Ralph Bowen, guest speaker from Oklahoma City, presented a lantern slide illustrated discussion on allergy in reference to the respiratory, cutaneous and gastrointestinal systems. Dr. Bowen's paper was discussed by Drs. Browning, Lucas, Webb, Gorton and Duncan.

Dr. Paul Winder gave a presentation of the subject "Special Ovarian Tumor". Dr. Winder's paper was discussed by Drs. Mathews and Mays.

Following the scientific program Dr. Sanders announced that the meeting of the Tri-State Medical Society was to be held in Shreveport.

Dr. Barrow offered the following resolution based on Dr. Horton's suggestion: "That the Fourth District Medical Society unanimously endorse the suggestion made by the President of the State Society, Dr. Horton, that a full time secretary should be employed by the State Medical Society to look after its financial interests, and that the matter should be respectfully referred to the State Society for its consideration." The motion was seconded by Dr. Rutledge and carried.

C. Raymond Mays, M. D., Sec.

SIXTH DISTRICT MEDICAL SOCIETY

The Sixth District Medical Society met at the East Louisiana State Hospital, Jackson, on November 18, at 7:30 p. m. The following scientific program was presented:

Serum Treatment of Disease: By Dr. Charles Eshleman.

Clinical Significance of Masses in the Scrotum: By Dr. John G. Menville.

Dementia Praecox and the Necessity of Early Diagnosis: By Dr. E. M. Robards.

J. L. Beven, M. D., Sec.

EIGHTH DISTRICT MEDICAL SOCIETY

At a meeting of the Eighth District Medical Society on October 6, 1937, the following officers were elected for the year 1938:

President: Dr. A. B. Cairns, Bunkie.

First Vice-President: Dr. J. A. White, Jr., Alexandria.

Second Vice-President: Dr. D. V. Donaldson, Dry Prong.

Secretary-Treasurer: Dr. Isadore Brickman, Alexandria.

Delegate: Dr. J. T. Cappel, Alexandria.

Alternate Delegate: Dr. L. D. Gremillion, Alexandria.

TRI-PARISH MEDICAL SOCIETY

The Tri-Parish Medical Society met on November 2 at the Fischer Hotel at Lake Providence. The members present were Drs. J. P. Davis, president, G. S. Hopkins, W. K. Evans, B. C. Abernathy and William H. Hamley, secretary-treasurer, from East Carroll; Drs. D. W. Kelley, B. L. Bailey, E. D. Butler, W. McG. Dollerhide and Fritz A. LaCour from West Carroll; Drs. G. W. Gaines, E. O. Edgerton and H. S. Provine from Madison; Drs. T. G. Johnson, D. F. Davis and T. G. Ward from Tensas. Drs. W. H. Parsons, Pierre Robert and J. L. Hall from Vicksburg, Miss., were guests of the society. Dinner guests were Mrs. J. P. Davis, Mrs. G. S. Hopkins, W. K. Evans, members of the auxiliary, and Miss Dorothy Kennedy, secretary to East Carroll Health Unit, and Mrs. Clyde Leaurant, R. N., local Unit Nurse. Drs. C. E. Rice, Surgeon USPHS, Consultant to the Social Security Board, was also present, having been sent from Washington to investigate reported trachoma in East Carroll Parish.

A paper, "The Early Diagnosis of Cutaneous Carcinoma", was read by Dr. J. L. Hall of Vicksburg.

"Some Remarks Concerning a Recent Visit to the Surgical Clinics of Great Britain and the continent" was presented by Dr. W. H. Parsons of Vicksburg.

Dr. C. E. Rice spoke on "Diagnosis of Trachoma."

The meeting adjourned to meet at Tallulah on December seventh.

William H. Hamley, M. D., Sec.

CHRISTMAS SEAL SALE

The opening of the 31st annual Christmas Seal Sale sponsored by the National Tuberculosis Association and its two thousand affiliated groups for the purpose of financing the organized campaign against tuberculosis, carries with it a warning from Surgeon General Thomas Parran.

"Tuberculosis constitutes both a challenge and a

threat . . . . Perhaps we have been too smug,—too confident that this killer was in a fair way to be exterminated quickly and without too great an effort on our part. Now we are brought face to face with the fact that the decline in tuberculosis mortality has, for the time being at least, been checked," Dr. Parran was recently quoted as saying in a statement issued by Dr. W. H. Seemann, President of the Tuberculosis and Public Health Association of Louisiana, which opened the Seal Sale in this state November 26.

"This disturbing news," the statement continues, "has become available in preliminary figures for the year 1936.

"The cessation of the decline in tuberculosis mortality is noteworthy. If later statistics confirm the indicated break in this disease, 1936 will be the frst year since the World War with the exception of 1926, that the mortality rate from tuberculosis in the United States has failed to decline. Preliminary reports from 34 states for the first quarter of 1937 show a slight increase in the mortality from this disease, indicating that the check in the decline of the death rate, which was first noticed in 1936, has continued."

Dr. Parran cites the unskilled industrial employees and young girls between the ages of fifteen and twenty-five as those needing immediate attention in the nationwide battles against tuberculosis and adds that negroes and other racial groups as well as boys and girls, particularly of high school age, should also be the center of preventive efforts.

"One of the outstanding means of preventing and curing tuberculosis," Dr. Parran went on, "is the income received from the Christmas Seals, the sale of which is now under way in all parts of the United States."

In New Orleans these seals are being sold by the Tuberculosis Committee of New Orleans.

"Despite the temporary check to our repressive measures," Dr. Parran states, "I reiterate—'Tuberculosis can be wiped out in our nation.'"

TULANE AT THE MAYO CLINIC

The following is a list of Tulane University graduates who are Fellows at the Mayo Clinic: B. F. Smith, Class of 1919; M. W. Matthews, Class of 1927; T. J. Fatherree and C. E. Ward, Class of 1932; S. J. Campbell, Class of 1933; S. B. Lovelady, J. C. Holman, A. K. Doss and F. M. Thigpen, Class of 1934; J. A. Hendrick, I. C. Skinner, T. L. L. Soniat and S. H. Colvin, Jr., Class of 1935; T. B. Tooke, Jr., Class of 1936.

NEWS ITEMS

Dr. Henry W. E. Walther, Professor of Urology, Louisiana State University, recently addressed the Southeastern Branch Society of the American Urological Association at the annual meeting held in Birmingham, November 5 and 6.

At the invitation of the American Academy of Ophthalmology, Dr. Charles A. Bahn, Director of the Department of Ophthalmology of the Louisiana State University Medical Center, gave a course of instruction at the Academy's meeting in Chicago, on October 12 and 13. The subject of the course was Ophthalmic Endocrinology.

Dr. Isidore Cohn, Professor of Surgery and Associate Director of the Department, Graduate School of Medicine, Louisiana State University Medical Center, was invited to give a fellowship address at the homecoming of the Scott and White Clinic, Temple, Texas, on November 12 and 13. The subjects which Dr. Cohn presented at this time were "Sudden Deaths" and "The Surgical Clinic."

Dr. Cohn will also present a paper on "Carcinoma of the Breast in the Negro" at a meeting of the Southern Surgical Association in Birmingham, during the month of December.

During the meeting of the Southern Medical Association in New Orleans, Dr. Cohn will be one of the speakers during the pre-convention clinic on New Orleans' Day. The subject of his address will be "Surgical Aspects of Splenomegaly."

Dr. James T. Nix, Dean of the Graduate School of Medicine, Louisiana State University Medical Center, attended the Clinical Congress of the American College of Surgeons at Chicago, October 25-29. At the invitation of the Congress, Dr. Nix presented a paper on the "Proper Attitude of the Medical Staff" before the Annual Hospital Standardization Conference. He also made two radio addresses during the Congress. The first was on "The Educated Physician" and was given over WJJD and the National Network. The second was entitled "Doctors, Dentists, and Diseases" and was given over station WGN.

Assistant Surgeon John R. Heller, Jr., was relieved from duty at Harrisburg, Pa., on or about Dec. 1, 1937, and ordered to proceed to New Orleans, La., in connection with venereal disease control activities.

Assistant Surgeon John W. Jolley was relieved from duty at the U. S. Quarantine Station, New Orleans, (Algiers) La., upon arrival of Assistant Surgeon R. D. Mansfield, and ordered to proceed to the U. S. Quarantine Station, Charleston, S. C., and assume charge of the Quarantine Station at that place.

Assistant Surgeon Robert D. Mansfield was relieved from duty at the U. S. Marine Hospital, Memphis, Tenn., upon arrival of Assistant Surgeon Fred J. Black, and ordered to proceed to the U. S. Quarantine Station, New Orleans (Algiers) La., and report to the Medical Officer in charge of the Quarantine Station at that place for duty.

Senior Medical Interne John W. Bunting was relieved from duty at the U. S. Marine Hospital, New Orleans, La., and ordered to proceed to Detroit, Mich., and report to the Medical Officer in charge of the Marine Hospital for assignment to duty.

Assistant Surgeon Paul T. Erickson was relieved from duty at the U. S. Quarantine Station, Miami, Fla., on or about November 11, 1937, and ordered to proceed to the U. S. Quarantine Station, New Orleans (Algiers), La., and report to the Medical Officer in charge for duty.

THE AMERICAN MEDICAL GOLFING ASSOCIATION

As in previous years, the American Medical Golfing Association is bringing a special train to the meeting of the American Medical Association in San Francisco. The first stop will be New Orleans on Tuesday, June 7, and five stops will be made en route to San Francisco, arriving there June 13. Golfing physicians interested in this trip may get all the details from Dr. Walt P. Conaway, 1723 Pacific Avenue, Atlantic City, N. J., the President of the American Medical Golfing Association.

EXAMINATIONS: AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The next examination (written and review of case histories) for Group B candidates will be held in various cities of the United States and Canada, on Saturday, February 5, 1938. Application for admission to this examination must be on an official application form and filed in the office of the Secretary at least sixty days prior to this date.

The general oral, clinical and pathological examinations for all candidates (Groups A and B) will be conducted by the entire Board, meeting in San Francisco, California, on June 13, and 14, 1938, immediately prior to the meeting of the American Medical Association.

Application for admission to the June 1938 Group A examinations must be on file in the Secretary's Office before April 1, 1938.

For further information and application blanks address Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh (6), Pa.

INFECTIOUS DISEASES IN LOUISIANA

Dr. J. A. O'Hara, Epidemiologist for the State of Louisiana, has furnished us with the weekly morbidity reports for the state which contain the following summarized information: For the week ending October 23, the forty-second week of the year, there were reported in double figures 79 cases of syphilis, 49 of pulmonary tuberculosis, 34 of malaria, 30 of pneumonia, 27 of cancer, 14 of gonorrhea, and 13 each of septic sore throat and typhoid fever. There were five cases of poliomyelitis reported this week: two from Orleans Parish, the other three respectively from Allen, St. James and Tensas. Two cases of typhus fever were reported from East Baton Rouge Parish. The next week, ending October 30, there were reported 46 cases of gonorrhea, 38 of pulmonary tuberculosis, 31 of cancer, 28 of syphilis, 24 of pneumonia, 23 of diphtheria, 18 of scarlet fever, 14 of malaria, 12 of typhoid fever and 10 of influenza. Three cases of poliomyelitis were listed this week: one from Livingston and two from DeSoto Parish. The majority of scarlet fever cases were reported from New Orleans, 10 in number. For the week ending November 6, syphilis showed tremendous increase with 118 cases listed; this was followed by 35 of pneumonia, 29 of malaria, 28 of pulmonary tuberculosis, 27 of diphtheria, 24 of cancer, 12 of gonorrhea and 10 of whooping cough. Four cases of poliompelitis were reported this week, one each from Acadia, Ascension, Concordia and Orleans.

HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of Census, reports that for the week ending October 16, there were 131 deaths reported in the City of New Orleans, exactly the same number as listed the previous week and divided 85 white and 46 negro. Nine of these deaths were in children under one year of age. The week ending October 23 showed a very peculiar coincidence: For the third successive week there were exactly 131 deaths, but the division between the races was slightly different, being 78 white and 53 negro. The infant mortality rate was high, there being 18 children dying under one year of age. For the week ending October 30, there were 140 deaths, divided 72 white and 68 negro; this week the infant deaths were 10 in number. The death rate seems to be remarkably stable for the present time, because for the week ending November 6, there were again 140 deaths in the city. At the time, however, there was quite a considerable increase in the number of deaths in the white population, there being 94 as contrasted with 46 in the negro. Deaths among infants under one year of age were nine in number.

WOMAN'S AUXILIARY
Louisiana State Medical Society

President—Mrs. George D. Feldner, New Orleans.

President-Elect—Mrs. Frederick G. Ellis, Shreveport.

First Vice-President—Mrs. Joseph P. Brown, Monroe.

Second Vice-President—Mrs. Walter Moss, Lake Charles.

Third Vice-President—Mrs. Robert Bernhard, New Orleans.

Fourth Vice-President—Mrs. E. A. Campbell, Homer.

Recording Secretary—Mrs. William B. Heidorn, Shreveport.

Corresponding Secretary—Mrs. Aynaud F. Hebert, New Orleans.

Treasurer—Mrs. Cassius L. Peacock, New Orleans.

Parliamentarian—Mrs. John T. Crebbin, Shreveport.

Our auxiliary members are enoying the letters from the presidents of the parish medical societies. This month we have one from Dr. J. Preston Davis, President of Tri-Parish Medical Society.

LETTER FROM DR. DAVIS

There was organized a Woman's Auxiliary of the Tri-Parish Medical Society last spring. We were glad to have them organize. It got more of us off to the state meeting and causes our own meetings to have better attendance. You know women just love to be going places and doing things. So they get the doctors off so they can go along. My wife got me off to the state meeting last summer and I had always claimed I did not have time to attend heretofore; but now I have resolved never to miss a state meeting if I can in any way make it and, of course, the wife will go along, too. They seemed to have had such a grand time in Monroe. Yes, we will be in New Orleans at the next state meeting.

Sincerely,

J. Preston Davis, M. D., President,
Tri-Parish Medical Society.

JEFFERSON DAVIS PARISH

The October and November meetings of the Woman's Auxiliary to the Jefferson Davis Parish Medical Society were held in Jennings.

Five dollars was contributed to the Indigent Physicians' Fund.

A renewal subscription of one year was given to the Jennings and Welsh High School libraries.

Interesting programs preceded the social hour.

Mrs. Claude A. Martin,
Publicity Chairman.

OUACHITA PARISH

The Woman's Auxiliary to the Ouachita Medical Society held its monthly luncheon and meeting at the Lotus Club. We find that for our October and November meetings our attendance was much better than in 1936, and the members appear most enthusiastic over the year's program of work.

Thus far, we have made our contribution of ten dollars to the Indigent Physicians' Fund; have obtained fifteen subscriptions to Hygeia; assisted in the financial drive for the Y. W. C. A.; offered our service and plan to do our part with the Red Cross Drive and sale of tuberculosis seals.

Our November meeting was specially planned to have as our guests the state officers and officers of Caddo, Claiborne, and Tri-Parish auxiliaries, but due to the inclement weather they were unable to attend.

Dr. Douglass Williams, Director of the Ouachita Parish Health Unit, who has cooperated with the Auxiliary in making possible free health examinations, gave a most interesting lecture on "Social Diseases."

Walter Winchell has nothing on us when it comes to announcing weddings and the arrivals of "blessed events", for we have three to announce; Charlotte Ashley, daughter of Dr. and Mrs. Scott Hamilton, and Jay and Joe, twin sons of Dr. and Mrs. J. W. Cummings. Mrs. Cummings was formerly Joe Mary McKoin, daughter of Dr. and Mrs. B. M. McKoin.

Dr. and Mrs. A. B. Gregory and Dr. and Mrs. C. H. Hill announce the marriages of their daughters: Jane Gregory to Mr Robert Kellogg; Evelyn Hill to Mr. Harry Moore, both taking place in October.

Both Mrs. J. B. Vaughan and Mrs. R. W. O'Donnell who have been ill were able to be present at our last meeting.

Since our meeting date has been changed from the third to the second Wednesday of each month, we will be able to contribute a bit of news from our auxiliary each month.

Mrs. DeWitt T. Milam,
Publicity Chairman.

ORLEANS PARISH

The November meeting of the Woman's Auxiliary of the Orleans Parish Medical Society was one of the largest in attendance in many years, having about 150 present.

The highlights of the meeting were a report from Mrs. George Taquino, Chairman of Entertainment for the Southern Medical Society Convention, and a report from Mrs. Theodore Simon on the enrollment for the classes in parliamentary procedure and public speaking which will be given complimentary to members of the auxiliary. Over 100 have enrolled to date.

Miss Jessie Tharp, well known New Orleans artist, gave a masterful reading of the current play "Victoria Regina."

The usual tea and social meeting followed.

Mrs. S. M. Blackshear,
Publicity Chairman.

TERREBONNE PARISH

Terrebonne Parish reports that this auxiliary is so new they have nothing to give in the way of news, but hope to let us hear from them soon. Mrs. J. B. Duval is their publicity chairman.

We are looking forward to seeing a number of our auxiliary members in New Orleans for the Southern Medical Meeting. Mrs. George Taquino, Chairman of Entertainment, is making great plans for the ladies' entertainment and we are sure you will enjoy your visit.

Don't forget the A. M. A. broadcast. We had the pleasure of hearing Dr. Morris Fishbein speak over the radio while in New Orleans and we are sure, if that is a sample of the broadcast, you won't want ever to miss one of them.

Mrs. Lucian W. Alexander, Chairman,
Press and Publicity.

With happy Yuletide days drawing near
Your President hopes they'll be full of cheer,
For you and those whom you hold so dear.
A MERRY CHRISTMAS!—HAPPY NEW YEAR!

BOOK REVIEWS

Protoformotherapy in Treatment and Prevention: By N. E. Ischlondsky. London, Henry Kimption, 1937. pp. 237. Price 21s.

By definition, protoformotherapy is the treatment by stimulation of the natural protective capacities of the organism. The introduction into the body of specific symptomatic medicaments is harmful because they inhibit the organism's reactions and resistance. Protoformotherapy prevents disease by correcting the deficient constitution of the organism by stimulation of the organism's own endocrine mechanisms.

The present work is an extended edition of three lectures delivered before the Egyptian Medical Association at the University of Cairo, in March, 1936, and first published in the Journal of the Egyptian Medical Association, June, 1936.

The first experimental work was devoted to the search for, and isolation of, the naturally occurring activating substances, in order to stimulte the endocrine glands by introducing them into the blood. By the end of 1924, the author had succeeded in isolating the substances from the embryonic tissues by extraction. A summary of the method is given. These stimulative substances, after their isolation were then combined with the "genital pro-hormone" in vitro, and the action of the product studied in a series of experiments. As a result, it was found that there is an increase of the general resistance of the treated animals and of their diverse natural protective capacities. These manifest themselves "in the struggle of the senile organism against deficiency provoked by age just as clearly as in the struggle of the sick organism against infection or other biolcgical disturbances". A general conclusion is drawn that "between the so-called normal, that is to say physiological, symptoms characterizing old age, on one side, and the symptoms called pathological, that is to say morbid, on the other there is no difference of principle as to the physico-chemical mechanism of their development or the character and mechanism of development of the incretory effect on those symptoms".

The second lecture is devoted to the internal secretion of the embryonic tissues and its clinical application; while the third discusses the internal secretion of the embryonic tissue, the problem of senility and biological regenerescence. The claim is made that, in the course of the clinical observations, "there was not a single symptom supposed to be characteristic of old age which was not encountered in homologous conditions in young invalids". Further, "that the experimental attempts to influence old age are from the scientific point of view as justified as the treatment of morbid processes". The fact that exceptional longevity exists in nature, rare though it be, clearly proves that it must be considered as a completely natural manifestation, and that the attempts to attain that longevity do not signify any action contrary to the laws of nature, but are well justified by those very laws". From a biological point of view the experimental regenerescence of the senile organism resolves itself into influencing the development, and especially the direction, of the vital processes in the way favorable to the organism, and into preventing, or at any rate retarding, the transition of the reversible chemical reactions into unlimited irreversible processes. While the attempts of Steinach and of Voronoff to offset senility are commended, they are criticized, because as with all other attempts, they blindly follow the old conception of Brown-Séquard according to which the re-establishment of the endocrinic activity of the genital glands is the fundamental fac-

tor insuring the practical solution of regenerescence. The author believes that if life could be kept continually developing then there would be no old age and this he believes he has demonstrated by the use of his extract.

The final section is devoted to protoformotherapy and the struggle against cancer, which is intimately connected with the ageing process. This he thinks can be successfully accomplished by the use of a protoformative extract of incret. Naturally, the question of the necessary amount to be used arises but, as the author says, this being of a purely technical nature, the difficulties which it may present can easily be overcome by the institutions interested in the investigation of the cancer problem.

There are 66 pages of appendices and 68 figures on plates in which clinical histories are summarized to illustrate the alleged benefit of the incretory treatment.

A careful reading of the text and an analysis of the histories do not bring conviction.

HENRY LAURENS, Ph. D.

Dr. Colwell's Daily Log for Physicians: Published by Colwell Publishing Company, Champaign, Ill, 1937.

The Physician's Daily Log is an excellent record book, of some 400 pages, for the practicing physician. It contains space for almost every conceivable financial contingency. Starting with the first day in the year there is a large sized page for the recording of each day's calls. At the end of the month there are several pages for the monthly receipts and disbursements. At the end of the book there is space for social security tax; obstetrical record with waiting list of patients; space for patients who have notifiable diseases, together with a column for when the notice was sent; and completed with a page for the annual monetary summary. Altogether the volume makes, as the foreword says, "A brief, simple, accurate financial record for the physician's desk."

J. H. MUSSER, M. D.

Clinical Parasitology: By Charles F. Craig, M. D., F. A. S. C., F. A. C. P., and Ernest C. Faust, M. A., Ph. D. Philadelphia, Lea & Febiger, 1937. pp. 733. Price $8.50.

The introduction to this book gives and presents an excellent summary of the facts which are elaborated upon in the subsequent chapters of the work that Craig and Faust have just brought out. The student of animal parasitic infections thus has a clear understanding of what is to be presented later on. There is also placed before Section II and Section III concise statement explaining in general terms the general considerations having to do with the subject matter of these two sections.

The book is divided into three sections: The first having to do with protozoa and protozoan infections, the second with the helminths and helminthic infections, and the last with arthropods and human disease. Each section is subdivided into chapters and each chapter deals with the important animal organisms which produce disease in man. Selecting at random a specimen chapter, in this instance chapter II, on the pathogenic ameba, first will be found the classification of the organism. Then follows a detailed biologic description of *Endameba histolytica*. The etiology is next fully considered and then some pages are devoted to the morphology of this endameba, whose habitat, life cycle, cultivation, epidemiology, methods of transmission are all fully presented. Succeeding this are divisions devoted to pathology and to symptomatology, to diagnosis, prognosis and treatment, as well as the prevention of *E. histolytica* infection. It may be seen from this outline of the arrangement of the material that there is a very complete series of statements covering fully every important fact or factor that has to do with disease caused by *Endameba histolytica*. Comparable chapters are presented in the other types of infection described in the first two sections. In the third section crustacea, insects and spiders are described, and discussed from the point of view of their ability to, and likelihood of, conveying disease, and what can be done to get rid of these annoying jointed-leg pests. This is really a very splendid section and is something quite unusual in medical literature. It is of extreme importance to the practicing physician to know about "bugs" and how they transmit disease. Likewise it is important to know how to control them. Following this there is a section on laboratory technic and aids for the collection and identification of parasitic protozoa, helminths and arthropods of medical importance. The book is completed by a splendid bibliography of important papers on the subject, as well as a list of authors who have contributed to the knowledge of these particular organisms. The index seems most complete.

This work has a distinct clinical implication, but it must not be forgotten that in order accurately and fully to understand clinical expressions of various animal parasitic diseases it is necessary to know something of the biology of the organisms. By combining the talents of two outstanding men it has been possible to present a work in which one man, in his special field thoroughly well qualified to discuss biologic aspects of animal parasitic disease, presents his aspects of the subject, while the other, equally skilled in his branch, gives the facts that would be primarily of interest to a clinician.

Especially to be commended are the two chapters on malaria. Here is a disease which is apparently more prevalent the past few years than for many years. All practicing physicians should know all angles of a disease which is as common as malaria. It is interesting to note that Craig apparently favors atabrine, followed by plasmochin in the treatment of the disease. It is also worthy of being noted that he considers chiniofon "the drug of choice" in the treatment of amebiasis.

It is believed that the book will be warmly received. It supplies a definite need and especially to the practitioners of the South who are constantly seeing patients who suffer from protozoal and helminthic infections.

J. H. Musser, M. D.

Physical Diagnosis: By Don C. Sutton, M. S., M. D. St. Louis, C. V. Mosby Co., 1937. pp. 495. Price, $5.00.

Again we have another book on physical diagnosis, and again we find those elements that make it as good and as bad as its predecessors. One gains the feeling that there is one more to join the innumerable caravan and that the truly great book on physical diagnosis still remains to be written. It is in the conventional manner. The information is reliable; the style is readable and the illustrations discernible. The sagittal and cross sections occupy a prominent part of the book. There are 13 cross sections showing the relations in the chest of the lungs, heart and mediastinal tissues. These may prove, the author feels, of great importance to the student in the interpretation of the findings upon physical examination. The roentgen ray pictures are satisfactory and numerous pictures add to the value of any book on physical diagnosis. The section on neurologic examinations is poor, as it is too brief. The historical introduction is good and the chapter on history-taking fairly good. All in all, it can be said of the book that it may be recommended to the student as well as almost any other book on the subject.

I. L. Robbins, M. D.

Personal Hygiene: By C. E. Turner, M. A., Dr. P. H. St. Louis, C. V. Mosby, 1937. pp. 335. 84 illus. Price $2.25.

Student health education and training have long been the interest of the author, as evidenced by his long career in this field and his previous work, "Personal and Community Health," Part I of which constitutes the basis for the present publication.

In the volume under review Dr. Turner gives a clear and readily understandable description of the physiologic mechanisms of the body but appears to have underrated the ability of university students to understand technical terms. The value of the book could have been enhanced by writing it on a higher intellectual level.

Similarly, the hygienic efforts to be applied do not always follow the physiologic principles on which they are based. For example, on page 221 in speaking of the effects of poor posture the statement is made, "The lungs are less completely expanded; some portions of them become less active and more readily susceptible to the development of tuberculosis infection"; on page 123, in a discussion of acute nephritis is found the assertion, "In the adult it may result from undue strain or exposure." These are old inferences that have not been substantiated in fact.

On the whole, the work is an excellent treatise on the fundamentals of physiology, is generally sound in its hygienic advice, but is subject to occasional overstatements in the relationships between cause and effect which unfortunately is the main approach of the author in his intelligent appeal to the students.

W. H. Perkins, M. D.

A Discourse Upon the Institution of Medical Schools in America: By John Morgan. Baltimore, The Johns Hopkins Press, 1937. pp. 62. Price $2.00.

When John Morgan delivered his memorable address before the College of Philadelphia in 1765, medical education on this continent was still represented by efforts of practitioners teaching the healing art to their apprentices. Morgan's intention was to bring to the American Colonies some of the methods he had found in practise in Europe from which he had recently returned.

His "Discourse" is an excellent exposition of his ideas on the subject. He clearly explained the need for specialization among practitioners and endeavored to separate the work of the physician from that of the surgeon on one hand and that of the apothecary on the other. The necessity for affording students a place to obtain a training in the fundamentals of anatomy, materia medica, botany, chemistry and the theory of medicine he stressed; and he urged the incorporation of medical colleges among the existing institutions of higher learning that standards of education might be maintained.

It is worthy of note that with the establishment of the first medical school in America, Morgan formulated principles of education which would today still be accepted as sound.

This little book is heartily recommended to all interested in tracing the development of American medicine.

Sydney Jacobs, M. D.

The Environment and its Effect upon Man: Symposium held at Harvard School of Public Health. Boston, Harvard School of Public Health, 1937. pp. 297.

The influence of the environment upon man with its weal and its woe has been the subject of thinkers from earliest times, but only recently has such observation been placed upon a sound scientific foundation. The result has been a body of data that have yielded tremendous assets in the amount of good that has redounded to the benefit of man.

In this symposium have been gathered authorities who have attacked this problem in its manifold aspects. Air-borne infections, CO_2 poisoning, air conditioning, toxic dusts and fumes; industrial fatigue and the effects of social environments are but a few subjects merely cited to call attention to the many revolutionary changes occurring in the industrial, social and economic life of the nations. It is a work with which the physician should be familiar. It reveals the great necessity of cooperation between the engineer and the physician so essential to the conquest of man's grim fight against a one time considered invincible and inexorable enemy, in the battle against disease. Great success has been achieved; much yet remains to be accomplished.

I. L. Robbins, M. D.

Oral Diagnosis and Treatment Planning: By Samuel Charles Miller, D. D. S., and 22 contributors. Philadelphia, P. Blakiston's Son and Co., 1936. pp. 540, illus. Price $7.50.

Such a book written by a highly able author and a host of distinguished contributors is a great contribution to a neglected phase of dentistry. This volume is well illustrated and covers every phase of dentistry from pain, caries and peridontia to the restoration of lost teeth. Among the contributors are found only outstanding men in their field, some with the degree of D. D. S., some M. D. and some Ph. D.

This work is a text for dentists and dental students, as it offers very little of interest to the physician.

F. Harold Wirth, D. D. S.

Clinical Reviews of the Pittsburgh Diagnostic Clinic: Edited by H. M. Margolis, B. S., M. D., F. A. C. P. New York, Paul B. Hoeber, Inc., 1937. pp. 552. Price $5.50.

Various and sundry subjects that make up the diagnostic problems of the every day practice of medicine as seen in the clinic are dealt with in this volume. To list the many subjects in this 552 page book is impossible. The diagnosis and treatment of obesity, heart disease, thyroid dysfunction, psychoneurosis are but a few of the conditions concerning which essays have been written and in major part by the editor. At the conclusion of the essays are very good bibliographic references. There are no illustrations but there is a good index.

The articles are well written and incorporate the most recent concepts held in present day medicine. Many of the articles contain case reports. Practitioners of medicine will find much in such a volume to be of interest, and the beautiful print and fine paper add to the benefit and pleasure of reading this book.

I. L. Robbins, M. D.

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John Bale Medical Publications, London: Malaria by Bernard Nocht, M. D., and Martin Mayer, M. D.

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G. Kolff and Company, Batavia, Java: Occidental Therapeutics in the Netherlands East Indies during Three Centuries of Netherlands Settlement (1600-1900) by D. Schoute, M. D.

Lea and Febiger, Philadelphia: A Diabetic Manual, sixth edition, by Elliott P. Joslin, M. D. Diseases of the Skin, fifth edition, by Oliver S. Ormsby, M. D., with revision of the histopathology and mycology by Clark Wylie Finnerud, B. S., M. D.

H. K. Lewis and Company, Ltd., London: Eyestrain and Convergence, by N. A. Stutterheim, M. D. (Rand).

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Oxford University Press, New York City: Supplements to the Oxford Loose-Leaf Medicine. Not So Long Ago by Cecil W. Krinker, M. D., Sc. D.

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Williams and Wilkins Company, Baltimore: Physiological Chemistry of the Bile by Harry Sobotka.